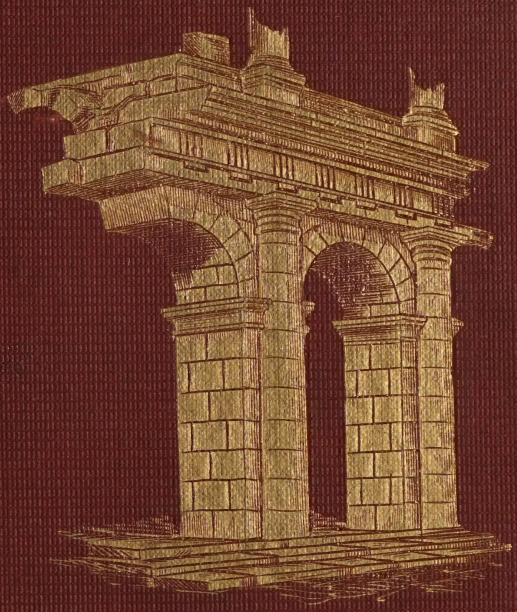

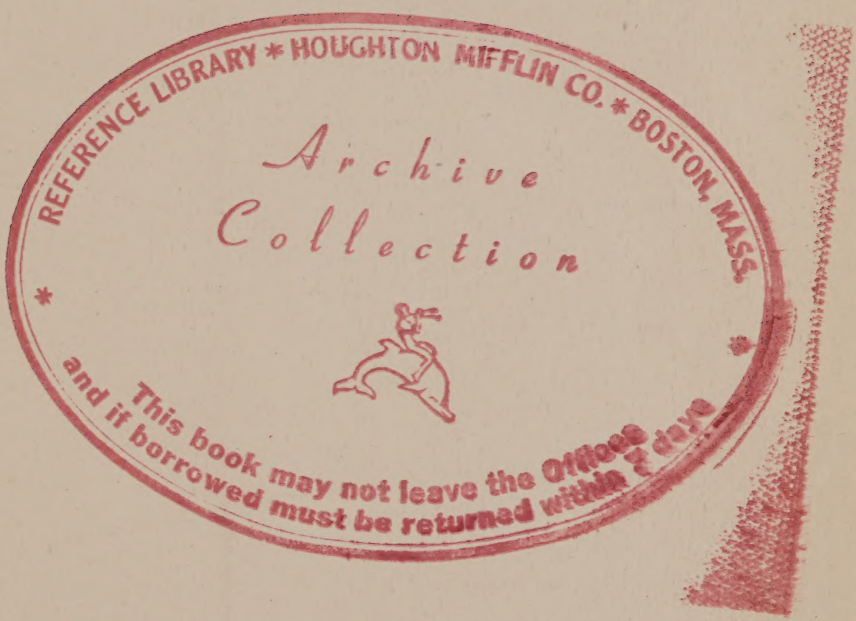
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THE LYCIAN SARCOPHAGUS

IN THE BRITISH MUSEUM.

DISCOURSES

ON

ARCHITECTURE.

BY

EUGÈNE EMMANUEL VIOLLET-LE-DUC,
Architect,
AUTHOR OF "THE DICTIONARY OF ARCHITECTURE," "THE STORY OF A HOUSE," "ANNALS OF A FORTRESS," "MEMOIRS OF THE DEFENCE OF PARIS," ETC., ETC.

TRANSLATED, WITH AN INTRODUCTORY ESSAY,

BY

HENRY VAN BRUNT,
FELLOW AMERICAN INSTITUTE OF ARCHITECTS.

ILLUSTRATED WITH PLATES AND WOODCUTS.

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to attack ancient abuses and professional errors made academical in the instructions of the great art schools of the capital and perpetuated in the modern architecture of France. In the midst of his polemic, the eagerness of his appeals to reason, his constant return to the practical conditions of structure as the true basis of design, may well attract attention. If the characteristic and deliberate architectural expression of French civilization, which is admired and imitated in every city of Christendom, is open to criticism such as this, it is high time for us to analyze the sources of our admiration, to enter upon a logical examination of architecture, and to learn at last whether there is an absolute right and an absolute wrong in this region of æsthetics, and whether taste or artistic feeling, or whatever the quality may be called which concerns itself with this expression of the human mind, can discriminate between them. Such an inquiry is not for architects alone, but for every man who is interested in questions affecting the uses of art in life. If architecture, in its good estate, is an art amenable to laws, and not a mere body of arbitrary formulas, — if all the phases of its proper development can be analyzed and explained by whatever process of reasoning, — every layman should be capable of an intelligent appreciation and enjoyment of it without a course of technical study, and the architect could no longer cover his errors of ignorance, carelessness, or haste behind his specious shield of conventionality.

In order as nearly as possible to give the American reader an impartial stand-point from which he may intelligently survey this field, it is important to glance briefly at the present state of architecture, — more especially in France, — and to ascertain, if possible, under what impulse or inspiration it has developed in the direction of the Louvre, the Hôtel de Ville, the New Opera, and the other familiar and characteristic monuments of French taste. Thus we may see in what an atmosphere and under what especial conditions these Discourses were prepared, and make due allowance for their peculiarities of temper and tone.

M. Viollet-le-Duc in the following pages has sufficiently set forth the historical conditions under which, in the time of Louis XII. and Francis I., classic forms supplanted mediæval forms on the soil of France. The question with which we are immediately concerned is how this fruitful derivative of Roman art has maintained its footing, and how it has continued its consistent development, in the midst of enormous social and political revolutions, and notwithstanding the love of change and fashion which is certainly a leading peculiarity of this people.

The French Academy of Painting and Sculpture was founded in 1648; that of Architecture, in 1671. The modern *École des Beaux Arts* is a direct descendant from these official schools; it has inherited all their collections, and in it are merged all their traditions of theory and practice. It is in the department of the Minister of Fine Arts, and is governed by a director appointed by the minister for five years; the administration includes a secretary, a treasurer, a librarian, and a custodian of the museum. This bureau is assisted by a council of instruction, composed of certain officials of state, two painters, two sculptors, two architects, an engraver or medallist, and five others. New members are elected to this council every year, replacing old members, who retire in turn. But old members are eligible for re-election, and practically the council has the power of filling its own vacancies. This important council has thus for a century been adapted naturally to the preservation of whatever inheritance of style and practice should be perpetuated for use in the great monuments of state, according to the traditions and prejudices of the school. The curriculum undertakes to embrace all branches of theory and practice. The theoretical studies comprehend æsthetics, the history of art, the elements of anatomy, perspective, geometry, mathematics, geology, physics, chemistry, archæology, construction, and the administration of works. Practical instruction in drawing and design is given in the seven official *ateliers* of the school, three of these being devoted to architecture, and each being under the charge of a director. The whole is enshrined in a superb Palace, constructed for the accommodation of the school, and filled with precious objects of art and every appliance which can inform and inspire the mind.

Public interest is periodically attracted to the school by the annual competition for the "grand prize of Rome." This is open to any Frenchman under twenty-five years of age, whether a member of the school or not, who shall have been successful in two preliminary and stated competitions. For architects, sculptors, and painters, the grand competition is annual; for engravers on copper, every second year; for engravers on precious stones, every third year. One grand prize is given to each branch of art. The successful competitors (*lauréats*) are maintained at the public expense for four years, at least two of which must be spent at the Academy of France at Rome (in the Villa Medici, purchased for the purpose by Louis XIV.), under the control of a director, who is responsible to government for the progress of their studies. In witness of this progress, each *lauréat*, during his stay at Rome, sends to the school at Paris a work of sculpture,

painting, or an architectural composition. The remaining two years may be spent in travel, at the discretion of each *lauréat*, he previously having reported his intentions to the authorities. At Rome the architectural student usually devotes himself to measuring and restoring the antique.

Outside of the school proper, the principal architects of Paris, assuming functions as *patrons*, have their *ateliers* filled with students, who, with more or less regularity, attend the lectures of the school, but have their greatest interest engaged in a series of stated competitions (*concours*) based upon programmes officially prepared and announced. These competitions are decided by juries largely composed of architects not officially connected with the faculty of instruction, and culminate in the two great annual competitions preliminary to the final struggle for the grand prize of Rome.

All this machinery tends directly to the creation and prevalence of a style of architecture peculiarly academical, and which, considering the atmosphere of emulation in which it has grown and its extraordinary fidelity to a comparatively narrow range of precedent and study, must necessarily be carried to the highest degree of technical perfection. This style, first made national by the châteaux of Pierre Lescot, Philibert Delorme, Jean Bullant, and the other French architects of the sixteenth and seventeenth centuries, and afterwards giving expression, with peculiar felicity, to the pomp of that great builder, Louis XIV., is of course a form of the Renaissance.

The council of the school, loyal to the exclusive traditions of the place, is content to keep this national inheritance pure from foreign alloy and free from any rivalry or distractions of mediævalism. The architects of Paris, who desire official patronage and decoration; the students, who rejoice in the superb emulation and national distinction of the grand prize; the multitude, who are proud of their great historical monuments, — all, under these inspirations, cling to the academic style, and recognize no other. Within the shadow of Notre Dame and of the Sainte Chapelle, they are intolerant of any nearer approach to the pointed arch than the conventional use in their ecclesiastical buildings of the round-arched Romanesque of the twelfth century and of such other Byzantine elements as can be adapted to modern means and necessities.

Until lately even Greek influences have been admitted with jealousy. M. Henri Labrouste, a *lauréat* of Rome in the year 1824, studied the monuments of the Greek colonies, and sent home, as his official contribution to the school, a correct restoration of a Greek Doric temple. M. Joseph Louis Duc, a *lauréat* of the following year, and immediately afterwards M. Duban and M. Vaudoyer, pursued their studies in Italy in the same direction with intelli-

gent enthusiasm, and brought back to France prolific seeds of Greek sentiment. This sentiment afterwards took form in what was known a few years ago in Paris as "the Romantic School," which consisted in the admission of a larger scope of invention and in the refinement of architectural forms by somewhat of the Greek feeling for purity and elegance of line. It was rather a Renaissance of Greek *expressions* than of Greek *principles*, and, owing to the facility with which even caprices could assume an air of studious elegance under this treatment, it became so popular and so well suited to French taste, that, after the construction of the Library of St. Genevieve by M. Labrouste, the prejudices of the Academy were overcome, and it became an essential element of French architecture.

Meanwhile, in this uncongenial atmosphere, the Gothic or mediæval school received its chief encouragement from the archæological spirit; and M. Lassus and M. Viollet-le-Duc became engaged, not in the legitimate and practical development of their theories of art, but in the restoration of the Gothic monuments of France.

The academic style of Paris has thus enjoyed the unprecedented advantage of an undisturbed growth of four hundred years in the hands of the wealthiest and most artistic people in the world. They have lavished upon the Roman orders and upon their Italian derivatives of the fifteenth century — a basis of a few simple architectural *motifs* — all the decoration and refinement of nearly four centuries of industrious and consistent culture. What wonder if the civilized world accepts the extraordinary result with admiration? Elsewhere, it may be said, architecture has suffered from anarchy; here is what may be accomplished by the vigorous administration of art. Why ask for it the blessing of perfect freedom, when discipline can achieve such triumphs? If all this is wrong, where shall we look for the right? Who shall tell us how we can develop good architecture? Who, in short, shall interpret for us the architectural myth?

There has hitherto been such a mystery about the practice of architecture, such an unexplained accumulation of formulas and rules, such peremptory exclusions on the one part, such affectations of lawlessness and caprice on the other, such a warfare between the picturesque and the symmetrical, that the theory of architecture has gone begging for a rational exposition. Literary enterprise both in France and England has occupied this tempting field of speculation with more or less of dogmatic assertion. In France the æsthetic faculty is by birth and growth so diffused, that criticism in the hands of Quatrèmere de Quincy and other men of letters has been kept in a work-

manlike track, and has done its work with comparative modesty and efficiency. But in England, to use the words of a late writer in the "North American Review," "since Mr. Ruskin set the example of a literary man erecting himself into a dictator on questions of art, we have been subjected to a fearful tyranny in æsthetics. It is true that no one else has carried matters so far nor with so high a hand, but there are innumerable petty despots laying down the laws of the sublime and beautiful, who only lack the ability to be as peremptory, as arbitrary, and as paradoxical as he." Thus, in the absence of a natural appreciation in regard to art and taste, the literary view of the theory of architecture has with us absorbed popular attention and moulded popular opinion. As for the architects, they have, with few exceptions, addressed no word of explanation to the public, and the speculators have had the field to themselves; indeed, in this country and in England certainly, the art itself for the last twenty years has been affected rather by prejudices based upon the literary exposition of the question than by convictions founded upon practical knowledge,—rather, in short, by sentiment than by reason. Since the publication of the "Seven Lamps of Architecture" and the "Stones of Venice," the characteristic expression of English architecture has been obviously colored by the mediæval monuments of Northern Italy. Many conspicuous structures have been directly inspired by these examples. The Manchester Assize Courts, the new Town Halls, most of the designs for the new Law Courts in London, would scarcely have existed in their present form but for this predominance of letters in art. It is premature to declare, perhaps, that these phenomena are evidences of more than an ephemeral fashion. M. Viollet-le-Duc maintains in the text (without reference, however, to this phase of actual experience) that the architecture of Northern Italy developed biographies and not history, and that it can accordingly afford but little profitable instruction. He also elsewhere very justly remarks that a true Renaissance has never arisen from corrupted types: "Only primitive sources can furnish the energy for a long career." But if, as has been asserted in some quarters, this adaptation of Southern *motifs* in a Northern architecture contains the elements of a just and reasonable progress towards a national style, this new English Renaissance exhibits curious and instructive contrasts with that of the sixteenth century in France; while the latter was the result of warlike conquests, and followed in the footsteps of French armies returning with captives and spoils from Italian cities, the former has come in this nineteenth century from the same fountain of art through the peaceful medium of literature and critical exegesis. However, we are witnesses of a rebellion taking place at this moment in the very strongholds of these

English mediævalists, in the revival here and there throughout England of the long square windows, the brick panels, the attenuated orders, the fretted and ornamented gable lines of the reign of Queen Anne. Is this an indication of anarchy, or is it a healthy reaction from a mere artificial excitement? We have noted the results of the discipline of the schools in France, in the scholastic elegance and finish of their monuments. Is this picturesque and uneasy groping after a type in England likely to result in something nobler than the façades of the Hôtel de Ville of Paris and of the New Opera?

In this condition of doubt we may welcome any man of trained observation and large professional experience, acquainted with the technicalities and manipulations of the various crafts whose labors enter into the construction of a building, — any architect, who is willing and able to explain the sources of his convictions. And here at last is a man who has studied, measured, analyzed, and drawn Greek and Roman monuments in Italy and the Greek colonies, certainly with singular fidelity and intelligence; who has rebuilt and completed the great Gothic château of Pierrefonds, built the town-halls of Narbonne and St. Antonin, restored numerous churches, constructed the flêche and sacristy of the Cathedral of Paris; repaired the fortifications of Carcassonne; architect of the works on the cathedrals of Laon, Sens, and Amiens, and the abbeys of St. Denis and Vézelay; author of the exhaustive *Dictionnaire Raisonné de l'Architecture Française, du X^e^ au XVI^e^ Siècles*, and other works of large research. Thus equipped, M. Viollet-le-Duc appears upon the scene, and endeavors to set forth the true sources of design; how best to analyze, classify, and use the enormous accumulation of precedents in all styles, by which we are so seriously embarrassed; how to receive the developments of modern science in the arts of construction, and how to give them place and due expression in our modern architecture; how to subject all our fancies, impressions, and prejudices to rigid philosophical investigation, and how thus to create new things fairly representative of the spirit of modern civilization, if not the new style for which literary criticism is constantly clamoring. We do not mean to assert that M. Viollet-le-Duc has succeeded in all these things, but we think it important to give a new publicity to this honest and earnest effort, and to place it side by side with similar essays of literary men and amateurs, that it may do its work with theirs.

It will be observed, as a characteristic of his argument, and as a reassuring fact to the professional reader, that at every step the allurements of mere sentiment, so irresistible to the layman, are distrusted, and that the

premises of every conclusion claim to be practical facts in the arts of building. It is admitted, of course, that he starts with a strong professional bias in opposition to the practice of architecture as carried on under the inspiration of the School of Fine Arts, and with a zealous admiration of the principles both of Greek and of mediæval art; but if his argument is logical, his appreciation of the great historical and contrasting styles reasonably discriminating and just, and his field of observation large and well occupied, we may well pardon the bias for the sake of his contributions to knowledge and the picturesque contrasts of his historical retrospect. Convictions based upon practical knowledge, gained from experience and observation, even if involving some professional bias or one-sidedness, are at least worthy of comparison with theories evolved in the literary manner and subject to the literary temptations of arbitrary statement and sweeping generalizations.

We Americans occupy a new country, having no inheritance of ruins and no embarrassments of tradition in matters of architecture; we are absolutely free from historical prejudice; and yet with our great future we have a constant and growing necessity to make of architecture a living and growing art; we may therefore be in a position peculiarly well adapted to appreciate at its just value any honest and earnest effort to give this art true development according to modern necessities. The great range of architectural precedents at no point touches our local domain or concerns our national pride. We are so far removed from such entanglements, that we alone of all civilized people may be said to occupy a position of judicial impartiality, and perhaps to us, therefore, with our obviously great material resources, may be intrusted the duty of finding a new solution of the architectural problem. If this be our great function, let us be worthy of it; let us prepare ourselves, whether as architects or critics, by understanding our duties.

But why, it may be asked, being so free and untrammelled, may we not break off from the past entirely and create a new American architecture, — why not begin afresh? To this, of course, there can be but one intelligent reply. All the past is ours; books, engravings, photographs, have so multiplied, that at any moment we can turn to and examine the architectural achievements of any age or nation. These suggestions of beauty and use are always with us. It must not be forgotten that the most essential distinction between the arts of primitive barbarism and those of civilization is that, while the former are original and independent, and consequently simple, the latter must be retrospective, naturally turning to tradition and precedent, and are therefore complex. A beginning once made by primitive dis-

covery and experiment, art, like nature, must thenceforward proceed by derivation and development; and where architectural monuments and traditions have accumulated to the vast extent that they have in modern times, the question is not whether we shall use them at all, but how shall we choose among them, and to what extent shall such choice be allowed to influence our modern practice.

It is not to be inferred that the "hope of modern architecture" — to use the imposing phraseology of the latest petty tyrant of art — resides in the library of the antiquary. His researches among the architectural characteristics of nations are made in an entirely different spirit from those of the architect. The former seeks among the monuments of the past for illustrations and vouchers in his historical studies, and, by curious analysis and patient comparison, to place before us in all their minute details such restorations as shall enable those monuments to play the part of authentic archives of human progress. His function is to make out of these the complement and completion of the political story and of the records of princes and parties. He aims to discover in tombs, temples, cathedrals, abbeys, and palaces, in all religious and civic structures, whether of pomp or necessity, deliberate and unconscious expressions of the prevailing sentiments, the social and political condition of the people in any given time. But such studies do not make architects nor affect architecture further than to create such a spirit of imitation, and, with it, such a mania for absolute "correctness" and such an abject fear of anachronism, as in England, during the early part of this century and up to within twenty years perhaps, bound the art hand and foot, and proved a stumbling-block in the path of its progress. The architect has felt himself called upon to make arbitrary selection of the "style" in which he would design his building, and to be "correct" in his archæological reproduction of its minutest details, leaving little room for the free spirit of invention, and no opportunity for the honest adaptation of his work to the new social and material conditions constantly pressed upon him in the advance of knowledge. If his work was in "Early English," he must anxiously consult his authorities, lest some characteristic detail of an earlier or later period should find its way into his design and ruin his reputation. Under the pressure of this widely prevailing spirit of antiquarianism, Sir Charles Barry was constrained to meet the exceedingly complicated requirements of the new Houses of Parliament with a masquerade of obsolete architecture of the time of Henry VII.

Are we then, on the other hand, to find the true architect in "the master-workman," as the Quarterly Reviewer would have it, — in the man who knows nothing of archæology and who cares less? In the beginning of things, when the needs of mankind were simple and their resources of knowledge and experience comparatively small, the master-workman had his day. He developed his primitive forms directly and honestly from practical necessity;

> "He builded better than he knew,
> The conscious stone to beauty grew."

His successors, unembarrassed by knowledge of other styles, avoided his obvious errors, profited by his experience, learned economy of materials, and, in a succession of tentative structures, gradually and innocently evolved monuments exhibiting the results of well-concentrated thought and of fidelity to a few simple conditions. The master-workman, however, laid aside his functions as an originator, and the architect was born, when precedent began so to accumulate, when civilization became so complex and exacting, the wants of mankind so various and conflicting, that, to meet the more elaborate emergencies of building, there came to be needed a larger and more exact knowledge, a more careful study of plans and details, and a more deliberate and scientific method of construction. These conditions began to render essential the organization of some processes and appliances, by means of which the system of structure in each case, embracing all the details of the building, could be more exactly and completely set forth long before the first stone was laid. They implied, in short, draughtsmen, instruments of mathematical precision, a library of reference, and all the other appointments and conveniences of an office, that is, both of a studio and of a place of business. They implied, moreover, not only the unwritten experience of the builder, but the training and observation of the scholar, by means of which the most remote results could be foreseen and provided for; and more especially, they called for the feeling, the inspiration, the patience, self-denial, and tempered zeal of the artist. Uncultured genius may be eloquent, but its eloquence is ungrammatical; and although in architecture as in literature we may sometimes pardon the awkwardness of the phrase for the sake of the preciousness of the thought, in neither — and more especially in architecture, whose highest duty it is to embody history and civilization in durable monuments, and whose processes are so artificial and scientific — can the preciousness of the thought render less necessary purity of language, elegance of expression, and exactness of knowledge. Uncultured genius may in a moment of heaven-sent

inspiration invent a great architectural thought, but plodding culture is needed to give it such expression as to render it worthy of place in the records of time and capable of doing duty as a new starting-point of architectural style. This is the plain *raison d'être* of the architect. He exists because civilization demands him. It is our present duty to see that he is worthy of his mission.

The architectural work of our own country indicates clearly enough that we have made the largest and most catholic use of European precedent, and endeavored to repeat European forms with all the fidelity in our power. But it is important to note that these forms have in each locality insensibly submitted in a greater or less degree to practical and social conditions. They have, however reluctantly, yielded some of their characteristics to the exactions of absolute local necessity and convenience, and, in so yielding, have created to a certain extent local peculiarities of form or style. Municipal regulations, characteristics of the local building materials, difference of climate, habits of building and living, the greater or less degree of culture, — all these conditions have contributed to create distinctions of style between the various cities and districts of our country. There is a recognizable difference between the architecture of New York and that of Boston, between that of Washington and that of Baltimore, between that of Philadelphia and that of Chicago. Our close proximity to these scenes of activity prevent us from seeing these processes in true perspective; but it is a fact that we are living in the midst of the development of styles, such as they are. If methods of intercommunication were as difficult now as they were several centuries ago, we should doubtless see very much stronger contrasts between the works of different localities; and if, added to this, it were possible to conceive that these localities existed without the means for the diffusion of knowledge given by the graver, the printing-press, and the photographic camera, we should in all probability exhibit variations of style as marked and characteristic, if not as picturesque, as those in the cities of Belgium, France, and England in the thirteenth and fourteenth centuries. But even under our present conditions the intelligent eye can detect the gradual development of local characteristics, not only in the subdivisions of our country, but, in a larger sense, in the nation itself as a whole and as distinguished from the other nations of Christendom, — characteristics not so marked, indeed, as those which made English work contrast with that of the Scotch in the thirteenth century, or that of Central France with that of Southern France in the twelfth century, but sufficient to indicate the existence of some influence insensibly and unconsciously working

against our intentions to imitate foreign styles. This is illustrated most conspicuously by the large use of wood which is imposed upon us by our obvious necessities; and although the master-builders of a few years ago tried very hard to imitate with this material Grecian temples of marble according to Stuart and Revett, or the mansions of brick and stone of the Georgian era according to the traditions brought over from the old country and loyally followed by our ancestors, yet, with due acknowledgment for certain suggestions from Swiss art, we have, under the pressure of necessity, produced at length certain forms in our wooden houses peculiar to ourselves, and capable under proper treatment of a high degree of artistic development.

Now, inasmuch as all history may be read by an intelligent observation of the monuments of the past, as the following pages show with sufficient distinctness, it is certainly important for us to see to it that *our* civilization is having a proper exponent in our monuments. We cannot remain indifferent to the operations of this mysterious influence which is building history for us. It is the part of intelligent beings to examine, and, if possible, correct it and give it proper direction. If we analyze it in this spirit, we shall discover that its principal elements are, *first*, practical local necessities and conditions; *second*, a dangerous superficiality of thought and work, arising from a deficient education in art and from a want of leisure, — from the spirit of haste and impatience which prevails in all new communities; and, *third*, indifference or absence of sympathy in the public for the just expression of beauty or fitness in buildings.

The natural local conditions, material and social, constitute a legitimate and controlling element of this influence. It is self-evident, that, to the formation of good style in architecture, the study of convenience and economy is the first duty, to which everything else must be subordinate. A public like ours, trained in habits of business, is positive and exacting, and at least has the virtue of compelling the architect to fulfil all such practical requirements in a straightforward and common-sense manner. Doubtless to this quality in our people we are indebted for the most characteristic expressions in our work. It is not a common occurrence for a man to incommode himself nowadays for the sake of an architectural idea. The merchant requires that the first story of the front of his shop or warehouse shall be of glass; the formulas of Vitruvius, Vignola, Palladio, and all the most venerable traditions and usages of the art, must yield to this inexorable demand; the building committee insists that their church must

be a place where all may see and hear the speaker, and that accommodation must be provided on the first floor for vestry, Sunday school, class-rooms, kitchen, and all the social and religious exigencies of their style of worship and service, although Pugin would faint with horror at the result. Yet it is out of just such prosaic exactions as these that our architecture must be developed. We must have narrow façades on our streets, and these must be built to the skies and crowded with windows. We can find no historic precedent for such things. We must accept the conditions as they are given to us, and create our architecture accordingly.

But the second element of the influence which is at work on our buildings is one which we can and ought to control, namely, superficiality of thought and work, whether arising from want of education or from the atmosphere of bustle and haste in which we live. American architects, as a rule, have not hitherto been men of high training; the standard has been low, and access to the recognized ranks of the profession has not been denied to the most ignorant and audacious pretenders. In order to counteract this great evil, a few architects who happened to live, practise, and study their art in the city of New York in the year 1857, — men who either in the schools abroad or in offices at home had been educated to the point of feeling the necessity of greater professional comity and of more intelligent rules of practice, — embodied themselves in a society known as the American Institute of Architects. The second article of its constitution sets forth that its objects are "to unite in fellowship the architects of this continent, and to combine their efforts so as to promote the artistic, scientific, and practical efficiency of the profession." The Institute, reorganized in 1866, has chapters or branches in every principal city of the Union, each of which has stated monthly meetings, and there is an annual convention of the national body. There is a steady increase of membership throughout the country, and the organization has already tended directly and indirectly to raise the standard of the profession, to prompt a large amount of active and fruitful work, to create an important *esprit du corps*, and to encourage a higher culture. It has been the means in several cities of obtaining important legislation for improvement in the arts of building, and its members in New York and Boston have established monthly publications, containing drawings and architectural projects, — which, without such a vehicle, would remain concealed and unproductive in the architects' portfolios, — together with studies and designs for buildings actually erected, thus facilitating the comparison of competitive designs, encouraging more careful work, and diffusing a knowledge of the

general progress of the art. In Boston the members of the local society have also delivered a course of lectures for the benefit of students, established prizes to encourage progress in their studies, and have inaugurated a series of exhibitions of industrial art. A body like the Institute, composed largely of young men, and recruited to a considerable extent in late years from graduates of colleges, bringing to it an important contribution of liberal training and general culture, and all fired with a certain degree of emulative and generous enthusiasm, — a body so composed can hardly fail in a young and impressionable country to do much towards diminishing the anarchy which has hitherto distinguished the practice of architecture here. Much has been projected, and somewhat has been accomplished, in the direction of the founding of architectural schools and the establishment of architectural departments in educational institutions. But, *from a national point of view*, the work of organized education is but begun, and a basis of cultivated conviction, not only on the part of those who preach and criticise, but on the part of those who practise and produce tangible results, is yet to be attained.

The atmosphere of haste in which we live is another element distinctly detrimental to the development of good style. Unlike the French, we have no such prevailing academical restrictions as are attributed to the influence of the School of Fine Arts, concentrating all architectural effort on the development of a few strictly defined ideas such as constitute French Renaissance; but, like the Greeks, we are in this respect free, and our appeal, like theirs, is directly to the people, not to any body of professors. But the Greek democracy, says our author, "had the inestimable advantage of leisure." The Greek temple therefore is an expression of utter tranquillity. The very essence of that great art was deliberation. The architect was never hurried; his inspiration proceeded, not from impulse, but from conviction. He built slowly. But with us he is pressed to the completion of his work amidst bustle and confusion. The public is impatient of delay; it must have promptness and despatch, at all hazards. The modern Ictinus must supply the design for the new Parthenon, "ready for estimates," in three weeks at furthest; and the unfinished study is perpetuated in a workmanlike manner, with all its sins of omission and commission made permanent and monumental. Indeed, all the conditions of life in this country encourage the architect to habits rather of rapid composition than of study and reflection, and tend to make of his occupation rather a business than a fine art. The "strenuous liberty" which we have inherited involves a constant and often harassing struggle for existence. Therefore the

aim of the architect is to multiply his opportunities of professional work to the utmost extent, having in view, first, his pecuniary emoluments of course, and, second, his art. Under these circumstances he has no time to review his studies; he cannot afford, after his first sketches are made and his work in progress of routine development in his office, to distrust and chasten his favorite *motifs*, with the solicitude and patience of an artist aiming at perfection like the Greek; much less, having discovered on reflection a new condition in his problem which would enable him perhaps to raise to a higher plane of artistic excellence or fitness the whole sentiment of his work, to throw aside his old labors and begin anew. This costs too much. If the products of routine and of conventionality will satisfy his impatient public, he has the strongest impulse under the circumstances to content himself with the superficial appearance, and let the substance of art go for those who can afford it. Art is a mistress who is won by no such partial service.

Notwithstanding the narrow path which they have chosen for themselves and their peremptory exclusions, even if their efforts are misdirected in the manner and to the extent which M. Viollet-le-Duc maintains, there pervades the schools of Paris an atmosphere of noble devotion to art. Whether this comes from the inspiration of venerable traditions and monuments, or whether it arises from a condition of society which enables respectability to be maintained at less expense and thus makes money less indispensable there than here, — whether it is the result of any or all of these causes, the spectacle of lives given up to art — sacrificed, from the mercantile point of view — is much more common with the French than with us. It would be impossible of course, even if it were desirable, to make a Paris — even a Paris of art — in this country. Our young architects may go to Paris, but they cannot bring Paris here. *Cœlum non animam mutant.* Yet, to compare our conditions of life as they affect the growth of artistic feeling with those of the French or English is useful and indeed indispensable, not only to bring us to our bearings, and, by comparison of results, to save us from the common sin of complacency, but to enable us to understand the philosophy of the development of distinctive styles, and to what extent these distinctions are due to natural and necessary premises on the one hand and to artificial and remediable causes on the other. It is impossible for us to enter upon any such comparison, without discovering at an early stage that our state of society is not such as necessarily to inspire the architect with high thoughts, or to exact from him that serious study and self-denial without which there can be no really great results. Civilization has no exponent more sensitive than

architecture; for it is an art not only absolutely indispensable, but one which adapts itself practically and æsthetically to the condition of things amongst which it grows. Of course individual genius, caprice, or invention finds expression in it, but no individuality can control it. We may conceive of the production of a perfect work of sculpture, painting, or music, or a great achievement of literature, in the midst of a community which cannot appreciate it and who had nothing whatever to do with giving it existence; but an architectural work, unless it is avowedly an imitation of some monument which has received the stamp of historical approval, notwithstanding all the original invention which the architect may bestow upon it, is the outgrowth, to a great extent, of a prevailing sentiment. It cannot exist without the sympathy of the people. It is an archive of history, having its birth in necessity, and its peculiar characteristics in the conditions of life. The Renaissance of Italy, France, and England may have exhibited individualities more than the ancient or mediæval styles, but it was created respectively neither by Arnolfo da Lapo, by Philibert Delorme, nor by Sir Christopher Wren, nor yet by their followers, however illustrious. Their works were the unconscious expression of their eras. They were the instruments, and not the authors, of styles.

To the sympathy of generous culture then we must mainly look to encourage the development of a fitting architectural expression of our time and place in history; professional culture and professional genius will eagerly arise under the impulse of appreciation to meet the great emergency and to give it grammatical utterance. To the creation of this spirit of sympathy therefore this reproduction of the earnest work of an illustrious Frenchman is humbly commended and dedicated by

THE TRANSLATOR.

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DISCOURSES ON ARCHITECTURE.

DISCOURSES ON ARCHITECTURE.

FIRST DISCOURSE.

WHAT IS BARBARISM? WHAT IS ART? — WHAT ARE THE RELATIONS OF ART TO CIVILIZATION? — WHAT ARE THE SOCIAL CONDITIONS MOST FAVORABLE TO THE DEVELOPMENT OF ART?

IT is evident that at certain times art has been developed with singular energy, has been honored, cultivated, and beloved, while at others it has fallen into indifference, neglect, or even contempt. It is customary to divide the history of art, accordingly, into periods of glory and periods of barbarism. But it is important at the outset to understand what is meant by barbarism.

I propose to prove that a people may be barbarous, according to our modern point of view, — that is, savage, superstitious, fanatical, without order or system in any of its movements, governed by the most imperfect laws, — and yet possess very perfect arts; and, on the other hand, that a nation may be civilized and polished to the very highest degree, organized under the most refined philosophy, and adorned by the most polite manners, and yet, in its arts, be degraded or even barbarous.

It needs no argument to show that barbarism, in the sense of cruelty, can have no influence over the arts; for history affords but too many examples of the prevalence of this unhappy instinct of human nature among people who have brought the arts to the very highest degree of development. Thus, while the Greeks were building the Parthenon at Athens, they were plunged in all the cruelties of the Peloponnesian war; while the Romans were spreading their civilization over the known world, and enriching their most distant

possessions with monuments of admirable skill, they amused themselves with mortal combats between slaves who had no cause for mutual hatred, and systematically gratified the savage curiosity of an idle populace by casting human beings to be devoured by the wild beasts of the circus. And in later times, while Christians were covering the East and West with the most inimitable works of art, they were slaughtering and burning one another at the stake for mere difference of opinion on a dogma or on the interpretation of a text. While Versailles and the *Invalides* were in process of erection, in the midst of a truly Augustan era of poets and artists, the courts of justice of the seventeenth century were still barbarously sending to the stake knaves or fools who called themselves sorcerers.

We can therefore at once disembarrass our discussion of the word *barbarous* in this sense, and consider it only in its broader signification of *uncivilized*.

I propose to show that, when we would compare the condition of art at different periods of the moral and political history of man, the question involved is not whether this or that period was more or less civilized than another, but whether it was distinguished for qualities more or less favorable to the development of art.

It is evident, in the first place, that the different branches of civilization do not all keep pace one with another in their progress. Institutions, politics, science, letters, arts, do not develop together; otherwise, our institutions, our government, our scientific discoveries, being in advance of those of the seventeenth century, for example, our modern dramas should be better than the tragedies and comedies of Racine and Molière, and our painters should leave far behind the great Italian masters of the sixteenth century; for Julius II. did not travel on a railroad, nor did Charles V. have an electric telegraph by which to transmit his orders to all the provinces of his vast empire. Art, above all, cannot be measured by any such symbols of material progress and prosperity. It has its own value, which may be recognized, not in its surroundings, but in its own truthfulness.

We all know that nations, like men, are nearer absolute barbarism in their infancy than when fully civilized or matured, and that they relapse into barbarism when the machinery which combined and brought into harmonious relations their various parts is worn out, just as the old man, whose organs have ceased to perform their functions with regularity, falls into his second childhood. Every era of art has in

like manner its infancy, its moment of maturity, that inappreciable interval between progress and decline, and its old age; but in these revolutions it never becomes barbarous so long as it remains true to itself. Its infancy is an anticipation, its old age is a memory of its maturer perfections. But when art studiously conceals or carelessly disregards the principles on which it is based or the practical necessities it is intended to satisfy; when it yields to the fantastic caprices of Fashion; when it has become a mere plaything for a school of artists, who act from impulse or custom and not from reason; and when, reflecting no longer the manners of a people, no longer pliant to all the uses and degrees of life, it has become a mere matter of luxury to the few and an affair of simple curiosity and wonder to the many, — then it has ceased to be true art and has indeed relapsed into barbarism.

But to arrive at a knowledge of truth nothing is more important than to define terms. Let us understand what Art is; for very many talk about art without any real knowledge of their subject. There are extant, indeed, many epigrammatic and sententious definitions, whose only merit consists in displaying the sagacity of their authors, and which are understood only by those who are as familiar with the subject as the authors themselves. I shall affect no such brevity.

In the Middle Ages there were seven "liberal arts"; but to-day, with all due respect to the colleges and schools of exact learning and moral philosophy, most of these "liberal arts" must be regarded as sciences. Let it be understood that by the arts we refer only to Music, Architecture, Sculpture, and Painting. We place them in this order because men uttered sounds before they built houses, built houses before carving them, and carved before painting them; for only a sharp flint was required to carve wood or sandstone, but to extract colors from vegetables and minerals and to apply them where needed implied a course of reasoning and observation involving a certain amount of time and study. This order is adopted, not because it is vitally necessary to our definition, but because it is convenient and rational. As for poetry and pantomime, they are necessarily akin to Music. These four arts are brothers: the first two, Music and Architecture, are twins; for it will be observed that, unlike Sculpture and Painting, they do not obtain their origin from the imitation of natural objects.

There are certain natural desires which, to be gratified, express themselves in a manner suggested by certain instincts of the soul, — instincts which a long observation finally converts into rules. Thus, man very soon discovered that language and signs were not sufficient to manifest all his ideas; he sought to move his fellows by giving to his voice certain inflections, certain cadences, a rhythm, to convey his thought more vividly. Children are not taught the art of intonation, yet, whether born in Paris or Pekin, they spontaneously express their desires or sentiments by a peculiar stress or rhythm of sounds, and these they assist by appropriate and natural gestures, understood by all. Here we have already a form of art. Animals have no pantomime to give additional meaning to their cries, which at most can express only immediate and personal sensations, such as joy, grief, terror, anger. Man alone foresees, hopes, remembers, and, at his will, his voice gives just utterance to the sentiment which he desires to share with his fellows, though the cause or object of his foresight, his hope, or his memory may, until then, have been unknown to his hearers. Yet, if he says to a crowd of a hundred men, "The enemy is sacking your homes and slaughtering your families," in the same tone with which he would say, "Come to supper," no one would move. But if his tones agree with his words, if these tones are aided by a natural gesture, evidently inspired by the consciousness of imminent danger, he would at once arouse the sympathy and indignation of his audience.

It is an important fact, and one worthy of careful consideration, that this primitive form of art will act far more surely on primitive than on highly civilized men: the latter would reason; however pathetic your accent, however expressive your voice, however true and terrible your gesture, they would say, without allowing themselves to be overcome by the art which you have put into your tones and your movements, "Whence comes this improbable news?"

From the art of tones to melody the road is short, and Music is born. Let us now examine architecture, to which we have given the second rank of antiquity.

To build a hut with the branches of a tree is not art, it is simply the fulfilment of a natural need; but to excavate a dwelling in a sandstone cliff, to divide the vaults into apartments of various sizes to accommodate the number or occupations of the household; cautiously to leave pillars to support the ceiling; to give to the caps of

these pillars a greater bearing surface, to avoid danger from the overhanging rock resting upon isolated points of support; then gradually to cover these walls and pillars, left from the original mass, with incisions, signs, destined to preserve the memory of an event, the birth of a child, the death of a father or a wife, a victory over an enemy, — this again is art.

It is needless to say more to prove that music, together with poetry and pantomime, which are its derivatives, and architecture, are the only arts in which primitive man developed certain creative faculties of his nature, in his desire to propagate his ideas, to preserve his recollections or share his hopes, by associating with them a sound or a form.

Sculpture and painting are to architecture what pantomime and poetry are to music; that is to say, derivatives, necessary consequences.

A man more intelligent and stronger than his neighbors has slain a lion; he suspends its skin before the door of the cave which he inhabits. The lion's skin is destroyed; he carves in the stone, as well as he can, something which resembles a lion, so that his children and his neighbors may preserve forever the memory of his strength and courage. But he wishes that this sign shall be seen from afar, shall attract attention. He has noticed that red, among all colors, is the most brilliant; so he daubs his sculptured lion with red. By this it is intended to say, "This is the house of the brave man who knows how to defend himself and his property." This is art; it exists here entire, complete, and nothing remains but to perfect the manner of execution. By and by our primitive hero dies; his relatives excavate in the rock a room in which to deposit his remains, then outside they carve a man fighting with a lion; the figure of the man must be large, that of the lion small, for the relatives of the deceased wish that the passers-by should know that their father, their husband, was a valiant man. Certainly, a little man who kills a great lion is more courageous than a great man who kills a little lion; but this is a complex idea, which does not enter into the mind of the primitive artist. In all the antique sculptured monuments of India and even of Egypt, the conqueror is represented as colossal, while his enemies, whom he defeats, are pigmies.

In the vestibule of St. Peter's at Rome, Bernini has placed the equestrian statue of Constantine, — a man who hung his father-in-law,

strangled his brother-in-law, butchered his nephew, decapitated his oldest son, and drowned his wife in a bath; who gave up to wild beasts all the Frankish chiefs whom he conquered on the banks of the Rhine, and finished his career by destroying the last remains of the institutions of antique Rome, never to rise again.

Now the red lion carved on the door of the barbarian, or the combat represented on his tomb, is more in conformity with the principles of art than this statue of the Emperor Constantine set up in the vestibule of a Christian church: the lion may be a shapeless image, the statue of Constantine an admirable work; this has nothing to do with the question, execution being foreign to the essential principles of art. But when a privileged people, while religiously preserving these essential and immutable principles, adds a taste for the beautiful and the power of expressing it in visible forms, we can then indeed say, "Behold an artistic people!"

Now such a people once existed in a corner of Eastern Europe. Yet, in a political point of view, the Athenians (to whom we refer) may be regarded as one of the most capricious of nations; to us their unstable institutions were barbarous; with respect to administration their ideas were vague and impracticable; they were perfidious; the populace were envious and greedy; their leaders were often tricky and corrupt; they were ignorant of the art of printing, the power of steam, the electric telegraph, the railroad: but, we must confess, their orators, their poets, their philosophers, their architects, and their sculptors remain superior to all that the most civilized epochs have been able to produce Again, it is certain that the ideas of this people concerning the structure of the human body were incomplete as compared with our own; anatomical science was less cultivated in the time of Pericles than in our day, and we are not informed that Athens possessed any amphitheatres of dissection; yet how does it happen that Greek statuary is universally admitted to be superior to that of any subsequent age? The governing machine of our modern civilization is evidently more complete and better organized than that which directed the primitive civilizations of Greece and the Greek Archipelego. Yet the *Iliad* and the *Odyssey* occupy a position above any other poems of the past or present. Thus art has no vital connection either with civilization, science, or politics.

. . . . .

If it is well established, therefore, that the *nature*, and not the *degree*, of civilization produces works of art, we must at once conclude no longer to confound the advance of civilization or the industrial arts with the advance of the fine arts; we must be content to judge of the latter without regard to the laws, the prejudices, the customs, more or less barbarous, of the people among whom they may be developed, and must not infer that, because a nation is superstitious, fanatical, disordered, its arts must necessarily be inferior to those of another nation which is liberal, polished and well governed; we must unlearn our habitual contempt for the arts of uncivilized peoples or periods, and bear in mind that such arts, however despised, may in all the essentials be far superior to those which we are accustomed to regard and to follow with scrupulous veneration.

An architectural student who devotes himself to the examination of the arts of any period of social barbarism is no more open to the reproach of entertaining a desire to retrograde towards such barbarism than are those who seek for inspiration among the arts of any other anterior period, from those of the Indians to those of Louis XV.; for no one, I suppose, will contend that our social state is not superior to the civilizations of antiquity, of the Middle Ages, or of the last three centuries. We must be consistent. It would seem that the arts either accompany, step by step, the material and moral progress of civilization, and that we have, therefore, attained the moment of their greatest glory, as our civilization is superior to all that has gone before us, and we must regard as relatively barbarous *all* anterior arts; or the arts are quite independent of the moral and material state of civilization, and that, therefore, the only guide to preference of one expression of art over another is each man's individual taste or caprice. But both of these conclusions are false. In order to obtain an exact notion of the relative nature of anterior arts, we must judge them according to certain laws, whose origin we shall presently have occasion to indicate, — laws which are peculiar to those arts, and entirely independent of the social state in the midst of which they have been developed.

We, more than any other people of the civilized world, are the creatures of conventionalities; we live for centuries on vulgar phrases; we accept, as undisputed and indisputable facts, certain sayings, lightly uttered by some man of wit completely ignorant of the study or the practice of art, and repeated through many indifferent generations.

Thus, there are in France certain ideas, like words corrupted by nurses, which are mechanically repeated for ages, and no one seeks to arrive at their true sense. But when presently there comes a man who says to the people, "You deceive yourselves; you give to this word a sense which does not belong to it; examine its etymology, restore its true meaning, and thus improve its usefulness and free yourselves from the imputation of ignorantly uttering words without knowing their value," at once every one is ready to cry "Anathema" to this corrupter of youth, who questions things which have been consecrated by centuries. Protest as he may the purity of his intentions, the reality of his claims; invoke common sense as he may, and furnish the most indisputable proofs, — still "Anathema." Two centuries ago they would have burned him and his books; now, as neither men nor books are burned, he is merely regarded as a dangerous or at least a troublesome fellow, a meddling busybody. He has endeavored to restore a misunderstood word to its true meaning; he is therefore charged with seeking to change the language and drag it back into barbarism. He has striven to harmonize speech with reason; so he is stigmatized as one trying to make people talk as men talked six or eight hundred years ago.

Now it needs but a little dispassionate reflection to set forever at rest the unprofitable disputes which in like manner divide and distract the realm of art. Every one has jumped at a conclusion on this subject; every one has adopted some conventional notion, and is impatient of any change. In support of these ideas a hundred pages are written, when only one is needed to prove them wrong. Scaliger says that every war arises from a *fault of grammar;* and so, as regards art, it may be said that all disputes arise from the want of a definition.

Art is a fountain of instinctive emotion reaching the soul of man by various channels. Thus, the orator, the poet, the musician, the architect, the sculptor or painter, all alike artists, may each in his own language utter the same sentiment, and, to a certain extent, arouse the same emotion in the heart of him who hears or sees. These various forms of art appeal to the senses, and the senses, in different ways, arouse the same series of ideas. For example, the appearance of grief, the accent of grief, and the representation or imitation of grief, create the same sentiment, pity. It is important to understand, however, that there are certain ideas, such as those of

philosophy and metaphysics, which are completely foreign to art proper, whose peculiar domain in the heart is emotional. Every one can readily understand the real object of art by referring to his own experience. For there can be no one who, at least once in his life, whether by the words of a poet or the notes of a musician, the aspect of a monument, a statue, or a picture, has not been thrilled by a peculiar emotion, has not been subdued perhaps by a sympathetic sadness, elated by an unexpected sensation of joy or hope, awed by some new sentiment of grandeur, or filled with gratified pride. It would even seem that the further the arts are removed from imitation of nature, the more apt are they to touch certain inward chords of the soul with lasting and profound emotion. The accent or trick of an orator, a gesture even, a musical phrase, a monument, may instinctively bring tears to the eyes or thrill the nerves with indescribable sensations. The sentiment thus aroused by one of the various expressions of art is our artistic instinct.

Let us analyze this sentiment; let us examine one by one these secret fibres of the soul so sensitive to the appeal of art.

Natural phenomena produce on our minds, through the senses, certain impressions quite distinct from the direct physical effect of such phenomena. Thus a perfume may recall to our minds a person, an event, a place. If the repetition of a mere accessory and purely physical sensation like that of smell can bring us back to a certain moral situation associated with a previous experience of the same sensation, it is because there have been unconsciously established within us intimate relations between the senses and our imagination. The noise of the sea, the murmuring of the wind, the rising or the setting of the sun, the aspect of a precipitous landscape or of a green meadow, obscurity, light, awaken in the soul of man moral sensations, a certain abnormal elevation of thought, which, in default of another word, we call poetic. These sensations owe their existence to the fact that to a purely physical impression produced from without are joined ideas which we derive from within. Thus the roaring of the billows is a noise with whose cause we are familiar; why, then, do we listen to it for hours? Why does it create in our minds a peculiar impression, which is not joy, nor grief, nor impatience, nor weariness? Because this grand harmony arouses certain sentiments which are lying, as it were, dormant in the soul. But suppose art, through the language of the musician, recalls to our

minds the harmony of the waves; instinctively the thoughts which occupied us when on the sea-shore once more arise, once more we seem to behold the immense ocean, and again to breathe in the fresh smell of the beach; the same poetic emotions elevate and fill the soul. Every branch of art exercises a similar power, and every artist in his own sphere can command an equal range of thought.

But we *see* the ocean and *hear* the noise of its waters; we therefore comprehend by what artifices the artist who appeals to the eye or addresses himself to the ear can, each one in his own language, recall the effect produced by the sea upon the senses, and by the senses upon the mind. But we cannot hear the sun rise; how, then, can a symphony create in the mind the same sensations which are produced by this daily phenomenon? Why do we say, every day, "This bit of music is of ravishing brightness, — that is sombre and fills the heart with gloom"? How can sounds be bright or sombre? But they are so; unhappy they who cannot sympathize with the reality of this paradox in the language of the arts.

Let a man enter a low but extensive crypt, sustained by numerous short and massive pillars: though he can walk and breathe there at his ease, he will lower his head; only sad thoughts and serious images will present themselves to his mind; he will experience a sort of inward oppression, a yearning for light and air. Let the same man enter a structure whose vaulted ceiling soars far aloft, a temple inundated with air and light: he will raise his eyes, he will seem to dilate with the ideas of grandeur which at once possess his imagination. Here is a phenomenon which any one can observe for himself.

Watch those who enter a low, dim apartment; they will not at first direct their eyes towards the roof, though so near to them, however richly it may be adorned; but you behold their attention attracted horizontally, then dropped to the pavement. If you do not warn them, they will leave the room without knowing whether the vault is decorated or plain. See, on the other hand, the traveller who enters the basilica of St. Peter's at Rome; from the very threshold his eyes are at once attracted towards that immense dome which crowns the structure. The pillars of the church are covered with marble; magnificent tombs adorn the walls; he does not see them, but, advancing, he seeks to penetrate the depths of the enormous cupola. You must repeatedly admonish him that he is jostling against sculpture,

that he is walking upon porphyry, ere his attention is withdrawn to objects near enough to enable their value to be exactly appreciated. Long horizontal lines, vaults low or elevated, an apartment sombre or brilliant, thus awaken in the human soul very different sensations. This is natural, simple, and everybody can understand it. But the human mind is complex; by means of an inward faculty whose machinery we do not comprehend, it establishes certain relations between appearances, sounds, and ideas, — relations which, however strange they may be, are none the less real, since we see them confessed by every individual of a crowd, gathered at the same place and at the same moment. Thus (for we must refer only to the most common phenomena if we would be understood), why does the *minor tone* in music awaken different ideas from the *major tone?* We may say that there are in all arts a minor and a major tone, and hence the infinite details which constitute each one of the arts.

A blind man was asked if he had any idea of redness. "Yes," replied he, "red is the sound of a trumpet."

There is, then, an intimate mutual relation between the expressions of the various arts, because, as we have seen, these expressions are drawn from the same source, and no nation can be truly artistic which does not equally comprehend all. So an architect who, in listening to an air or a poem, in beholding a piece of sculpture or a painting, is not moved as deeply as when he examines a monument, is no artist in the highest sense of the term; he is but a practitioner: it is the same with the musician, the poet, the painter, and the sculptor. Indeed, these relations between the different fibres of the soul, thus deeply affected by the arts, are so intimate that all men, and, above all, primitive men, children, have recourse to metaphor when they wish to communicate their ideas to others.

When we contemplate a nation which has expressed the highest ideal of immortal beauty in forms or phases the memory of which has come down to us through the ages, though we now can hardly comprehend them, we may be sure that such great results were brought about by the perfect mutual harmony of its music, its architecture, its sculpture, its painting, and its poetry, all inspired by the same impulse and all contributing to the same end. The people who first comprehended and realized the full power of this harmony invented the theatre, which is the most complete expression of this

unity of all the arts. Hence among all nations endowed with the sentiment of art the theatre has become one of the most indispensable necessities.

Bold indeed was he who first ventured upon this orchestral union of music, poetry, architecture, sculpture, and painting in the ancient theatre, that together they might produce on the multitude a harmonious sentiment, a homogeneous emotion (if I may use such a word); who dared to develop out of these various elements of art a symphony, as it were, in which each of them should utter at a given moment a melodious and complete accord! To what great results was this temerity developed among the Greeks! How thoroughly was this artistic concord understood, and what emotions it awakened in the midst of that accomplished people!

But these concerts of the arts with all their effects upon the multitude were repeated in a later day. The Middle Ages were not ignorant of this close mutual relation existing between the various forms of art, when they built their churches, in which the architecture, the imposing ceremonies, the music, the sculpture, the painting, the voice of the orator, seemed to direct all souls to the same thought. If antiquity possessed this scenic power in an exalted degree, the mediæval period, as we shall presently see, was no less richly endowed.

Thus, then, in a philosophical point of view, art must be regarded as an indivisible unity, assuming different forms to act upon the minds of men; and when these different forms are placed in concord at the same place and time, when, actuated by the same inspiration, they employ the method peculiar to each to move the senses, they produce the most vivid and lasting emotion which thinking beings can experience.

I still retain, distinct and fresh in my mind, the recollection of a childish emotion, though the circumstance which I am about to relate occurred at a time the impressions of which are usually of the vaguest character. I was often confided to the care of an old domestic, who led me to walk wherever his fancy dictated. One day he took me into the church of Notre Dame, carrying me in his arms, for the crowd was great. My attention was attracted by the glass of the south rose-window, through which the rays of the sun penetrated, colored by the most radiant hues. I still seem to see the spot where we were stopped by the crowd. Suddenly the grand organs broke

into music; to me, it was the rose before my eyes which sang. My old guide sought in vain to undeceive me; under this impression, more and more lively when I imagined that such panels of glass produced the grave tones, and such others uttered the high and piercing ones, I was seized with such great terror that it was necessary to take me out. It seems, therefore, that it is not education alone which establishes within us these intimate relations between the various expressions of art.

The epochs which have been so favored by Heaven as to be able thus to express the various language of true art, must ever be regarded as the most precious in the history of the human mind. The duration of such an epoch may be brief; but this detracts no more from its value than the transient life of a flower injures the quality of its perfume, the vivacity of its colors, or the admirable purity of its petals.

We have many misunderstandings concerning the word "art" to get rid of; it must be understood that in speaking of art we do not refer to such *arts* as that of the veterinary surgeon or that of verifying dates. In this indiscriminate use of the word we have forgotten its origin and real meaning; for art is well born, but readily falls into bad company. We must rest upon the principle that art, like morality and reason, is a distinct definite *unity*. Institutions are different and variable; but among all nations, whatever their institutions, morality and the exercise of the faculty of reason are invariable; all men are born barbarous, but apt to comprehend the immutable rules of morality, apt to reason and avail themselves of their reasoning powers for the sake of self-preservation, self-defence, and possession, enjoyment, life. These three faculties of comprehending art, of teaching and practising morality, of acting intelligently, are peculiar to man.

A dog makes no distinction between a stone post and a statue, between a picture of Titian and a curtain; and if Greek birds have ever picked at grapes painted on a panel, it is because such birds were not made like those of our day. If, as is pretended, Alexander's horse neighed on beholding the portrait of his master, it was because Alexander's horse was more than an animal. But there is no savage who will not see in a statue the representation of a being with whom he is familiar; yet the savage will make no distinction between a statue by Phidias and a stone carved in rude semblance of a human being.

The savage attaches to such an image an idea completely foreign to its value as a piece of handiwork. As a child he has been told, "This coarsely carved block is the god who presides over combats, who will give you victory over your enemies if you bring fruits to him every day." This block, however shapeless, becomes in his eyes a superior being; he attributes to it sentiments, he fears it, he sees it in his dreams and in his combats, his imagination endows it with passions. If the savage is an Indian or an Egyptian, soon he desires that this imaginary form should be materialized. To this end, why should he seek to imitate the natural forms around him? He gives his idol the head of an animal on a human body; he adds ten arms, he paints it with red or blue. He has been struck by the proud, noble, or ferocious aspect of a certain bird of prey; he seizes the principal traits of this aspect, he exaggerates them, he instinctively idealizes the natural lineaments, and he places this head, thus transformed, on his god of combats. No one dreams of disputing; all accept the myth. But that his idol may obtain due respect, it must needs be colossal, and impose as much by its grandeur and apparent material power as by its combination of these creative ideas; or it must be withdrawn from public gaze in some sombre place. So it is carved out of a rock, or placed at the end of a narrow crypt to which access is gained only by passing through a diminishing series of grottos. The workman himself, who gives shape to this idea, sees nothing strange in the respect and terror with which his fellows enter these caves; he himself feels the same sentiments, though the idol is the work of his own hands. While engaged in his labor he is entirely occupied with the purpose of giving form to his imagination; he sees only the stone and his chisels. But when the idol is finished and placed in its crypt, he fears it and renders to it the same homage as his neighbor who had no hand in the making of it; the artist has become the dupe of his own workmanship; he no longer beholds the brute stone to which he has given a form, he sees but the realization of his thought; the material labor has passed from his recollection; his handiwork is a god for him as for all. Nor must it be supposed that this disposition of the human mind is peculiar to primitive people; it is natural to all men and in all times. The intelligent child who carves a doll out of a block of wood will attribute to this coarse figure ideas and thoughts which do not exist for him in the perfect doll from the toyshop; he will name it, he

will place it near him while he sleeps; sometimes, I have observed, this image will be but a strange assemblage of nameless forms, the product of a dream of the young mind which has been animated by the desire of expressing an idea which no one can express for him; this desire is art. Thus art is form given to a thought, and the artist who creates this form aims thus to inspire others with the same idea. For the architect, art is the sensible expression, the material public manifestation, of a satisfied desire.

Even in our civilized state, do we not every day see children, nay, grown men, prefer an imperfect, conventional image to a perfect engraving? Do we not see them attaching to this imperfect image ideas which do not exist for them in an excellent work? We believe this sentiment should not be disdained as the result of ignorance. It is a sentiment which arises from a pure source, it is a necessity; though indeed, through fault of education, it tends towards barbarism.

This primitive desire which prompts men to create idols has its rise in a concurrence of ideas: (1.) There is the love of man for his own handiwork, the sentiment of vanity which prompts the act of creation; (2.) the idea of especial sanctity which the object created acquires by consecration; (3.) the consciousness of having expressed divinity in creating a work outside of nature. An Indian who makes a monster surmounted by an elephant's head and possessing ten arms, is certain that he has produced a supernatural, and therefore a divine work. His neighbors on beholding this idol are awe-stricken; for to them it is the expression of divine power. All people have begun by making their statues monstrous before dreaming of imitating nature. The earliest heads of Medusa among the Greeks had wild boar's tusks and enormous jaws. But when a people, like the Greeks, unites to these primitive sentiments of art the love of the beautiful, and more especially is offended at that which is ugly, inharmonious, vulgar, that people has attained the highest pinnacle of art. The Greeks finally made the monstrous head of Medusa a mask of ravishing beauty, but the sculptor, nevertheless, always aimed at producing the same effect of terror; as the public became more intelligent and polished, he understood that deformity or exaggeration would rather cause disgust than fear, and it became his task to teach them how a creature could be malevolent and terrible without being ugly. More than this, — he felt that the intelligent society around

him could be moved as he desired only by beauty, and that beauty was the only guise under which his idea could be admitted to their hearts.

Yet such an epoch may, to our civilized eyes, be barbarous, that is, delivered up to fanaticism governed by prejudices, possessing imperfect laws, living under an insupportable tyranny, having neither administration nor police, holding half the population in slavery, and without order or system. All this does not prevent art from being a language universally understood there.

We have endeavored to explain how men are enlightened by the first glimmerings of art. Imagination is its source; imitation of nature, its means. Man, absolutely speaking, cannot create; he can only, by bringing together and comparing the elements of divine creation, give birth to what may be called a creation of a second order. But it must here be observed that the human imagination would produce only evasive dreams if man did not possess an inward impulse which forces him to define and give body to those dreams. This impulse is his reason, or rather his power of ratiocination.

This natural faculty indicates to him that the more the creations of his imagination depart from the reality, the more it becomes him to give to the material traits by which he would make those creations intelligible to the eye, a cohesion, a harmonious form. The human imagination conceives the idea of a centaur, that is to say, an impossible creature, unlike anything in nature, an animal with four feet and two arms, two pairs of lungs, two hearts, two livers, two stomachs, two abdomens, etc. An Iroquois can conceive such an absurdity; only a Greek has succeeded, by means of his faculty of ratiocination, in giving to this impossible being an intelligible form. This faculty led him to observe how the different parts of an animal are mutually united: he attached the spinal column of a man to that of a horse; the shoulders of the latter gave place to the hips of the former. He joined the abdomen of the man to the breast of the quadruped with so nice an address that the most skilful might believe that he beheld there an exact and delicate study from nature. The impossible in this way became so intelligible, that even for us to-day the centaur seems to be an actual being, as real to us as a dog or cat. But there comes a philosopher, who, with the works of Cuvier in his hands, demonstrates that this creature with which you

are as familiar as if you had seen him running in the woods, could never exist; that it is a scientific absurdity; that it could neither walk nor digest; that its two pairs of lungs, its two hearts, are the most ridiculous of suppositions. Now, which is the barbarian, the philosopher or the Greek sculptor? Neither, perhaps; but the philosophic observation proves to us that art and the exact knowledge of things, art and science, art and civilization, may be very distinct from each other. How does it affect me, an artist, when a philosopher proves to me that a certain creature cannot exist, if I have a consciousness that it does exist, if I am familiar with its gait and its habits, if in imagination I see it in the forest, if I attribute to it passions and instincts? Why deprive me of this possession? Will the philosopher gain anything in proving to me that I mistake chimeras for realities? Certainly the Greeks of the age of Aristotle knew enough about anatomy to recognize the fact that a centaur cannot exist; but they respected art as much as science, and would not permit them to reciprocally destroy each other. Artists at once comprehend that a nation possessing these attributes is not barbarous. In Greek sculpture, how many scientific irregularities we behold, how many anatomical faults! Yet whence the nobility which seems to illuminate its works? Why does a Greek statue, though in the midst of a museum, mutilated, out of place, in a false light, mounted on a pedestal too often ridiculous, — why does it still maintain a bearing so distinguished that all other sculpture seems awkward and vulgar in its presence? Were the Athenians all royal in their bearing, in the delicacy and beauty of their forms? Certainly not. It is art which has given to their bodies this inimitable ideal distinction; art has made them undergo a new creation. Art may be found among other people, in the midst of other civilizations, but it must ever be developed in the same manner, its principle must proceed from the imagination, and it must be expressed through nature, not by becoming her slave, but by knowing her secrets. A sculptor created the centaur, and knew how to render the fiction credible by scrupulously observing the mechanism and the minutest details of actual creation; it is by the excessive delicacy of his observation of nature, that he caused his creation of the second order to be recognized by all, by the poet even, who, in his turn, gave to this being manners, habits, and particular ideas. But think you these kinds of creations are peculiar to primitive people? Does not art

to-day intervene to give an appearance of reality to fiction? Does it not always proceed in the same manner?

Let us suppose you are a poet or writer of romance; you wish to give the appearance of reality to a fable; you imagine some impossible thing, an apparition, for instance; you are aware that your auditors do not believe in apparitions; how must you proceed, then, to cause your fable to affect their minds as with the impression of a real event? You take pains to describe the locality of your story, to give to every object an appearance of reality; everything in your picture must have *body*, every person must be clear and distinct in features and in character; you leave nothing vague or indecisive; and when your scene is so vividly pictured that your auditors have become, as it were, actors in the story, let your phantom appear. Immediately all that which is improbable in your tale will assume an appearance of reality,—an appearance which will be striking in proportion to the degree of exactness with which your preliminary descriptions have been traced after nature. This is art. Helen, in the Iliad, would be but an odious creature, notwithstanding her beauty, and the Trojan war the most ridiculous of expeditions, if the poet had not been an artist in the true meaning of the word. Had he dwelt upon the charms of Helen, had he compared them to lilies and roses, the reader would have remained unmoved, and would have despised them, her, her lover, her husband, and all the Greeks and Trojans together. The poet does better than describe to us the whiteness of her skin and the sapphire of her eyes; he shows us the old men of Troy seated together and engaged in the most bitter discussion concerning the wife of Menelaus, the cause of their long sufferings and of the death of so many warriors. Helen passes by; instantly the old men arise and are silent in the presence of her majestic beauty. This is the sublimest effect of art. After this passage of the Iliad every reader will pardon Paris, and will understand the slaughter of so many heroes; the cause of the war no longer seems absurd, and its attendant misfortunes and disasters are imputed to Destiny. Thus the Greeks still remain kings of art. They comprehended the nature of man, and, better than this, they elevated his intellect, his instincts, passions, and sentiments by appealing always to the noblest side of his character. They knew how to depict the most vulgar actions and objects without vulgarity. Their imitators have

to a greater or less degree approached this nobility without attaining it; for to equal them, it needs not only to know the secret of their art, but to have, like them, sympathy and appreciation from a whole nation. *Odi profanum vulgus et arceo*, said Horace; but Horace was an expatriated Greek, surrounded by barbarians. There was no poet, architect, or sculptor of Athens who could have had occasion to cry, "I hate and avoid the vulgar rabble," — for there was none such there.

The art which we discover in the poetry and sculpture of the Greeks we also find in their architecture; for a people is not truly artistic, unless art is applied to all the works of its hands and its intelligence. Architecture, moreover, is, with music, one of the forms of art in which the creative faculty of man is most independently developed. It does not receive its inspirations from natural objects, but follows laws established to meet certain necessities. These laws are the result of reasoning. But how and why does art concern itself with the simple satisfaction of a material desire? Because art is born with man, and, unless his nature is perverted, it is perhaps his first desire. . . . .

Education alone can stifle this inner sentiment, and, unhappily, this sad result is too often reached in times especially proud of their civilization. Art is perhaps the most delicate of human instincts; as soon as one can hear and see, he possesses it; its purity is readily lost, but to develop it is a task at all times difficult, and especially so in the midst of a civilization like ours, which pretends to direct every individual according to certain conventionalities and doctrines. Now, we cannot *direct* art among a people; we can only create an atmosphere favorable to its development. It is the greatest and the imperishable glory of Greece that her civilization admirably understood this principle.

We suffer a wrong to-day which we cannot remedy; we have come too late into the world. The ancients, in preceding us, have robbed us of the simple and beautiful ideas which we otherwise perhaps would have had. We cannot, like them, act according to a unique system. With us, the duty of the artist has become very difficult. We labor under an infinity of old prejudices and habits belonging to dead civilizations, and besides these, we have our own complex modern needs, habits, and conventionalities. But, like the ancients, we still retain the faculty of reasoning and, to a certain

extent, that of *feeling*. It is by means of these two faculties that we should seek for the true and beautiful. I am convinced that we can bring the taste of our generation to perfection by making it reason. Observe that, in many cases, reason accounts for the judgment which taste has pronounced. Very often (perhaps always) the sentiment of taste is but an involuntary and inappreciable act of reason. To acquire taste is only to become habituated to the good and the beautiful; but to become habituated to the beautiful we must learn how to find, or rather how to choose it; now, to enable us to make this choice, we must call to our aid the faculty of reasoning. On beholding a certain building our whole spirit is at once charmed, and we cry, "What a beautiful structure!" But this instinctive judgment is not enough for us artists; we ask ourselves, "Why is this structure beautiful?" We wish to discover the causes of the effect which it produces on us; and in order to do this, we must have recourse to reason. We then seek to analyze all parts of the work which charms us, so that we may avail ourselves of the composition when we would design in our turn. Embarrassed as we are by prejudices and doctrines, all of which have the singular pretension of being absolute, this analysis is at the present day difficult. Let us, however, endeavor to free ourselves from these embarrassments.

I believe that I have shown how a people may be barbarous and yet possess highly developed arts; how the *presence* of art is recognized in a human work; how it happens that art may dwell in a cabin or a cave and be excluded from the palace or from the greatest temple: it remains for me to indicate what social conditions are most favorable to its development. This question cannot be solved in a paragraph. I propose to consider it in future discourses. At present I confine myself to laying down some general principles.

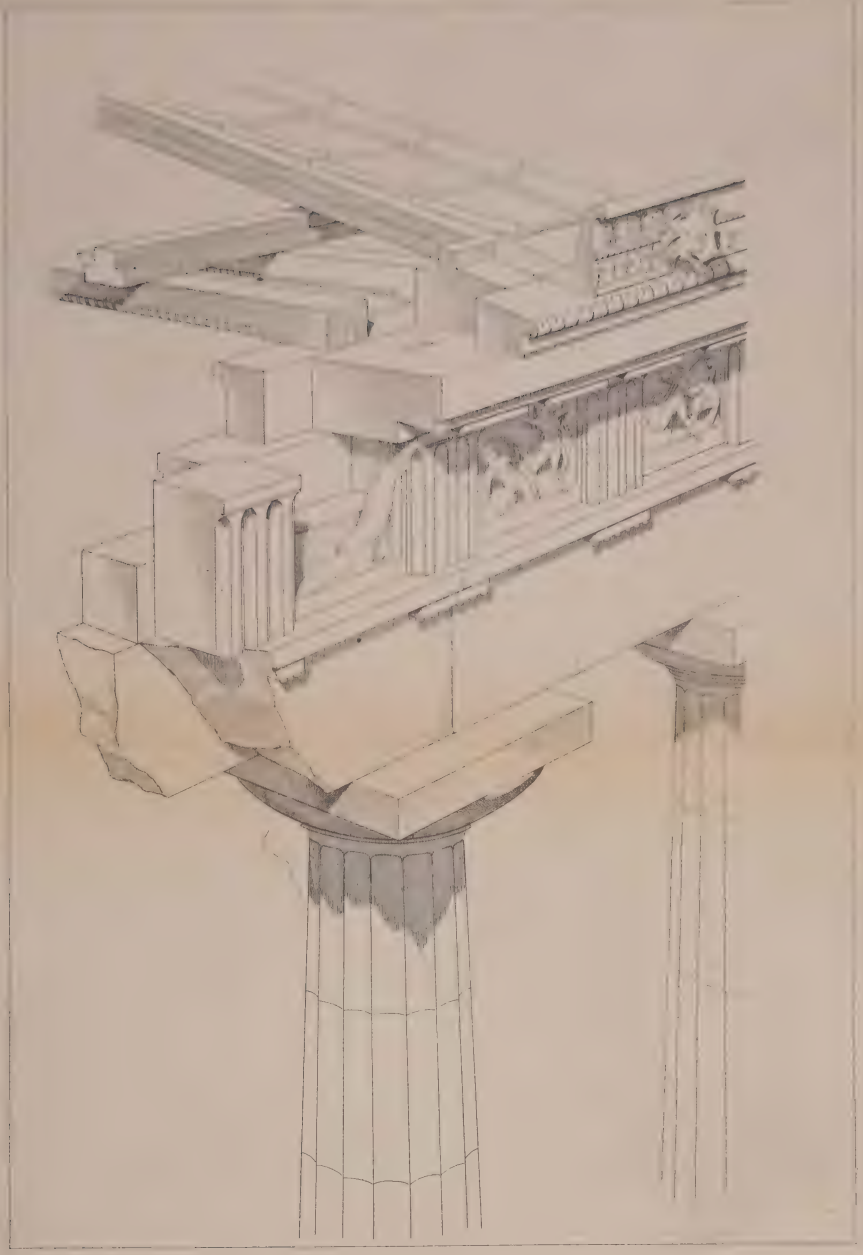
The arts have been developed and have fallen into decay under all social forms; under the theocratic government of the Egyptians, under the capricious and unsteady government of the Greeks, under the administrative government of the Romans, under the oligarchical or anarchical republics of Italy, and under the feudal yoke of the Middle Ages. That which we call form of government, therefore, has no influence over art. Arts, on the contrary, are actively developed when they are associated with and express the manners and customs of a nation; but when separated from those manners to form, as it were,

an institution apart from them, the arts decline, gradually become shut up and isolated in academies, and presently adopt a language and a manner of expression no longer rational. Then art is like a foreigner, only occasionally entertained, and strange to the ordinary life of the people; and finally it disappears, for it becomes an embarrassment instead of an assistance; it pretends to rule, but has no subjects. Art can live only when free in its expression but submissive in its principles; it dies when, on the contrary, its principle is forgotten and its expression enslaved. Art became extinct among the Greeks when their genius was stifled under the Roman yoke, and when they wished to build at Athens monuments like those of Rome. Nearer to our own time, the arts of the Middle Ages accompanied step by step the manners of the people among whom they were developed; they participated in the grand intellectual movement of the sixteenth century; under Louis XIV. they were still the living expression of the manners of the time; but, like those manners, they were exceptional, a kind of theatrical representation which finished with the reign of that prince. Since then our manners have undergone a singular modification, and in the seventeenth century art ceased to develop form. As for its principles, they have been buried; my readers shall judge of this.

I perceive that all primitive civilizations had the same physical and intellectual needs, and possessed nearly the same creative power as regards art, in which they expressed a certain simple and very restricted order of ideas. The task of the artist was then comparatively easy; he was not obliged to load his memory with that multitude of details which, with us, impede even the earliest natural flights of imagination; he was embarrassed by no accumulation of precedent. The first of all sciences, that of the human heart, is easy to acquire, when, as happens among people whose civilization is but slightly developed, everybody lives openly in the fields or in the public places, and when the sentiments, passions, vices, virtues, tastes, and desires of mankind are subject to none of the artificial restrictions of custom. The primitive artist was but an observer, not a student; he made the most of a social state whose simple mechanism was always before his eyes. Thus the Egyptians, the Eastern and Western Greeks, and the Etruscans, whose monuments are familiar to us, give evidence, in their art, of an observation of gesture so truthful and delicate that modern effort is challenged in vain to surpass it.

This same peculiarity we again recognize in the West in the twelfth century. The French sculptors and painters of that era, though they had taken no lessons in style before the bas-reliefs of Thebes, or the vases of Etruria and Greece, followed the same principles as the artists of antiquity. This concurrence arises from the fact that all these artists deduced their results from the same phenomena. *Gesture* can be reproduced in the plastic arts only when it is the exponent of a simple sentiment, and sentiment is simple only among primitive men. In a highly civilized state, on the other hand, all sentiment is complex, divided. When the wife of a savage dies, he only comprehends that he has lost a being with whom he has lived. But to the immediate grief caused by such a fact a civilized man unites other sentiments: embarrassments, fears, hopes of fortune raised or lost, all the altered details of a very complicated state of existence. How can so many sentiments be expressed by a gesture? If, then, we may infer from their gestures how far men are advanced in civilization, and if among civilized and refined people gestures cease entirely, what is left to inspire the plastic arts? Must the modern artist, when he would express a sentiment in his art, content himself with an imitation of gesture, as interpreted in the sculpture and pottery of his rude forefathers? Such a second-hand proceeding would seem to be pedantic, false, and artificial; the artist is no longer understood by his contemporaries. He seeks *style*, and speaks of it among a people who are not in a condition to know what style is; whereas the primitive artist unconsciously expressed style in his works and was universally comprehended.

That which we say of gesture may be applied to the whole domain of art. It is easy for an architect to erect a temple in honor of a mythical divinity, the representative of a passion, a principle, or even of a part of the order of creation; for this myth has a body, a sensible appearance, attributes; such a thing belongs to him, such another is adverse to him. But to build a temple to the Christian God is a more difficult task; for in Him everything is united, He presides over all, He is the beginning and the end, He is space. How can we make a dwelling for Him who is everywhere, how can we express in stone this abstract idea of Divinity, how make it understood that an edifice is the house of God? The mediæval artists undertook this task with some success; and how? They made the Christian church an exponent of creation, as it were; they expressed



CONSTRUCTION OF A GREEK TEMPLE.

in it, as in an epic of universal stone, all things in the visible and invisible order of creation. The task was imposed upon them, and their glory is all the greater if they succeeded.

We should therefore be modest, and consider carefully before applying the epithet of barbarians to those who have preceded us in art. Yet I am not among these who despair of the present while gazing regretfully at the past. The past is irrevocable; but it becomes us to study it with care and sincerity, to cherish it, not that we may revive, but that we may understand and be made wise by it for the fulfilling of our own duties. I cannot admit the propriety of imposing upon our own age any reproduction of antique or mediæval forms of art, or those of the academies of Louis XIV., precisely because those forms were the exponents of the times to which they belonged, and because the manners and customs and requirements of this nineteenth century do not resemble those either of the Greeks, the Romans, the feudal epochs, or the seventeenth century; but the principles which guided the art of the past are true, and the same for all time, and will never change so long as men are made of the same clay. Let us, then, endeavor to submit ourselves anew to them; let us examine how our predecessors translated these principles by forms which were the true art expression of their respective eras, and then, with the best wisdom of experience, let us proceed freely and unimpeded by narrow prejudice in what we may justly call the path of progress. Since, in the midst of the modern chaos, reason has not deserted us, let us use this divine faculty to guide and control our practice in art.

SECOND DISCOURSE.

CONCERNING PRIMITIVE METHODS OF CONSTRUCTION AS PRACTISED IN GREEK ARCHITECTURE.

IN the preceding discourse I have endeavored to define what I understand by Art, to explain how it is developed, the principles of its progress, its different expressions. We must now limit our subject, and occupy ourselves more especially with one of the forms of art, — Architecture. I shall speak but incidentally of the architecture previous to the Greek epoch, my aim being to treat of the systems used by the nations of the West, — systems whose spirit, development, and methods have been directed towards the same idea of incessant progress. Now, the Greeks were the first who opened the path of progress to the civilizations of the West; the first who threw aside the swaddling-clothes in which the East seemed enveloped, and desirous of enveloping the whole world forever.

Let us, then, enter at once upon our subject.

There still remain in Greece and in her colonies monuments of great antiquity and of immense interest to archæology, but of whose origin, history, structure, and destination I know too little to be justified in dwelling on them here. I would not incur the reproach of speaking concerning things unfamiliar to me. Let other professors, much more versed than I in this particular study, impart elsewhere the results of their researches; all that I could say regarding monuments which I have not myself examined, drawn, measured, and analyzed, and with which I am acquainted only by descriptions or engravings, would have but little value when compared with the learned discussions of those who have devoted themselves to such

specialties. So far as practicable, I propose to treat only of that which I have seen, and which, consequently, I, as an architect, can exactly describe and appreciate. I would add that I would not venture to speak of the origins and qualities, the progress, errors, and decline of an art, unless I had devoted my leisure to studying it at length, to penetrating its mysteries and understanding its language. I trust my readers will appreciate any reticence I prefer to maintain because of my feeble respect for preconceived ideas, and because I have not the happy faculty of speaking about what I do not know.

Many authors and professors have pretended that Greek temples of stone or marble are, as structures, but traditions of wooden construction. This hypothesis may be ingenious, but it does not appear to me to be based on an attentive observation of the monuments in question. Those who first maintained this hypothesis had no knowledge, or, at most, but a very superficial knowledge, of Greek architecture, and, as often happens, subsequent authors, writing on the same subject, have found it more easy to reproduce this hypothesis than to examine critically into its probability. "The Greek temple," most of them assert, "is derived from construction in carpentry; the columns are barked trees; the capitals are pieces of wood serving as projecting caps to receive the horizontal beams; the triglyphs are the ends of the joists over the porticos; the inclined eaves, the extremities of the rafters of the roof upon which a plank is nailed"; and so on. At first sight all this appears plausible; but the theory encounters a difficulty in the very outset. This is, that primitive wooden structures were circular, composed of a series of trunks of trees whose bases were planted on the circumference of a circle, and whose summits were brought together conically. Even Vitruvius, an author worth consulting for the sake of his antiquity, who gives us all the stories probably extant in the schools of his day about the origin of Ionic and Corinthian capitals, but who was a critic of only ordinary abilities, notwithstanding the respect which is due to him, — Vitruvius speaks of the primitive wooden cabin, and he is far from pretending that such forms were imitated in the Doric temples of Greece. Hear what he says in Chapter III. Book II.: —

"At first men made their huts of poles disposed conically, interlaced with branches and plastered with clay. Some built walls with

blocks of dried mud; then laying pieces of wood across the top, they covered them with reeds and leaves as a protection against the heat and rain; but, as these coverings would not guard against the weather in winter, they at length inclined the roofs and plastered them with clay, to enable them to shed water."

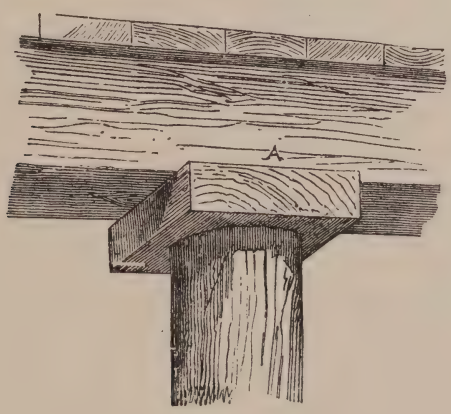
But here the text of Vitruvius becomes more curious: "It is evident that the earliest habitations were built in this manner, from the fact that even now, in Gaul, Hispania, Portugal, and Aquitania, similar structures may be seen, covered with split oak shingles or vine branches. Among the people of Asia Minor and Colchis, where forests are abundant, we find similar buildings. After laying horizontally on the right and left two trunks of trees their own length apart, the natives place two others at right angles across their ends, to enclose the space destined for the habitation. Then they lay upon these along the sides of the square other trunks in a similar manner, their ends resting on the angles, and by successive layers at length reach the requisite height; the spaces between are filled with chips and mud. For the roof, they continue these successive layers, using shorter and shorter trunks, till they reach the apex of a pyramid; and, covering the whole with leaves and clay, they compose, in their barbarous way, a tent-like roof. But the country-people of Phrygia, having no forests to furnish materials, excavate the natural hillocks, with a hollow, trough-like path to give access to the interior as well as circumstances permit; around the space thus excavated poles are planted, inclining conically towards a common centre where they are secured; these they cover with thatch and reeds, and heap earth over the whole cone, thus rendering their huts warm in winter and cool in summer. In other countries the houses are covered with marsh reeds. At Athens the huts of the Areopagus, built of mud, are still exhibited as a curiosity on account of their antiquity; and in our own capital the cabin of Romulus, covered with thatch, enables us to understand this primitive method of building."

These examples are enough to prove that the primitive wooden hut has no resemblance to a Greek temple; it is almost always a cone or a pyramid, and, in fact, the first idea naturally suggested by the necessity of making a shelter with trees, is to plant them in a circle and bring them together at their summits. To this day the savage tribes of Africa pursue this course.

But let us come to details: Let us suppose that a man, knowing

nothing about construction, wishes to lay pieces of wood across the tops of posts; let us suppose that this man is intelligent, as were certainly the indigenous or aboriginal peoples of Greece; and that he has at least invented the hatchet, if not the saw and the plane. The first idea which will suggest itself to him, in order to bring the posts into line, — a necessary provision if he would unite them above by a cross-beam, — will be to square them; for, as the trunks of trees are almost always twisted, they cannot otherwise be brought into a strict line. This intelligent man (let us not lose sight of this point) has observed that the trunks of trees, when raised horizontally by their two extremities, bend in the middle with their own weight, and especially so if they support a burden; he lays then, between the top of each post and the horizontal beam above, an intermediate piece of wood, in order to diminish the space between the bearing points. For this purpose he will scarcely employ a square slab, of

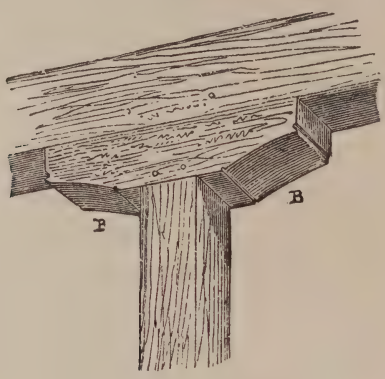
Fig. 1.



wood, such as is indicated in Fig. 1 at A, that is to say, a piece very difficult to procure on account of its width being much greater than the diameter of the posts, and above all very difficult to cut and dress without the aid of tools which he does not possess. Certainly such a piece of wood for the capital of his post would ease but slightly the bearing of the horizonal beam. He would not give himself so much trouble to obtain a result so insignificant; but he would cut a piece of wood of a certain length, and in width equal to the thickness of the post, and placing it between the top of the post and the horizontal beam, parallel with the latter, would

obtain an actual support to ease the bearing of the beam by means of the two prominent projections, B as indicated in Fig. 2. This

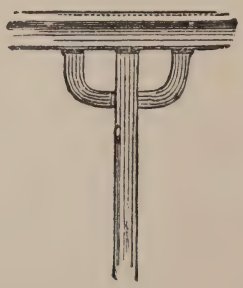
Fig. 2.



is real wooden construction, such as we see imitated in stone in the monuments of India and even in those recently discovered at Nineveh.

But the square, wooden post has four incommodious corners, which the primitive constructor proceeds to hew down, and thus forms an octagonal prism. The last form adopted for the posts is cylindrical, as, to produce this form, requires a higher degree of skill in carpentry than merely to reduce them to the square section. Indeed, if we would reach rational conclusions regarding the formation of primitive systems of construction, it is far better to consult the skilled workman who can supply us with reasons based upon

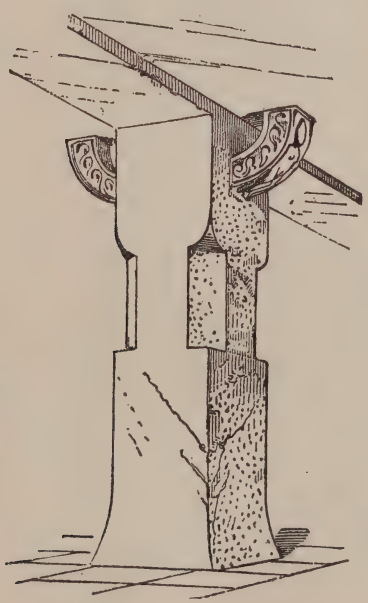
Fig. 3.



practical experience, than to depend upon mere theories, however ingeniously applied.

The primitive architecture of the people of the far East (that common source of all arts), in its general characteristics as in its details, furnishes us, more than any other, with constructions in stone imitated from those in wood, the Indian architects carrying this point so far as, in the ceilings of their rock-cut temples, to copy joists and planks. Many Chinese houses, for example, have wooden porticos whose lintels are supported by posts assisted by brackets made of curved pieces of wood as indicated in Fig. 3; while in the crypts of Ganessa, at Cuttack, in India, the supporting pillars of stone have a similar form as represented in Fig. 4.* Other pillars, in one of the temples of Ajunta, are constructed as in Fig. 5. In these two

Fig. 4.

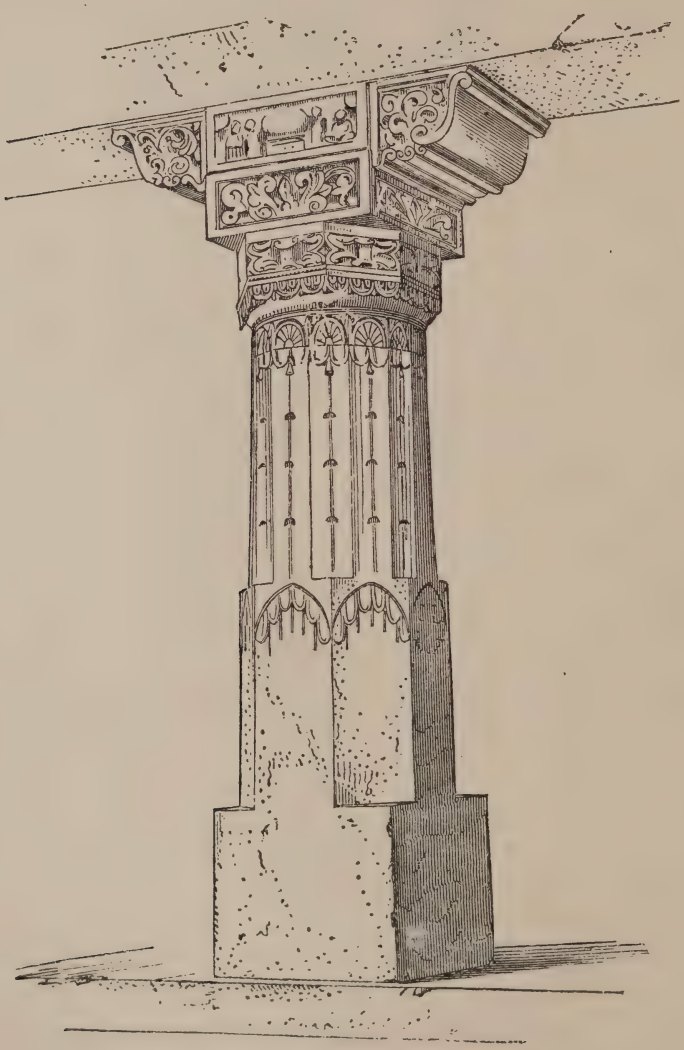


examples the bracketed capitals supporting the rock-cut beams are evidently reminiscences of wood and wooden constructions. The pillar with the square base in Example 5, which passes to the octagonal form and then to the sixteen-sided polygon, and finally returns to the octagonal and the square at the summit, suggests

* See "The Illustrated Handbook of Architecture," being a concise and popular account of the different styles of architecture prevailing in all ages and countries. By J. Fergusson. London. 1855. Vol. I.

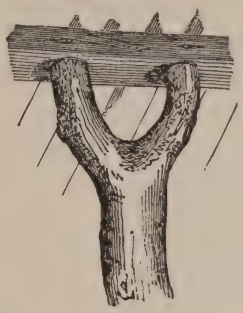
wooden construction much more readily than stone. Any one will appreciate this who has endeavored so to manage a wooden support as to obtain the greatest strength, firmness, and extent of bearing which the material will allow.

Fig. 5.



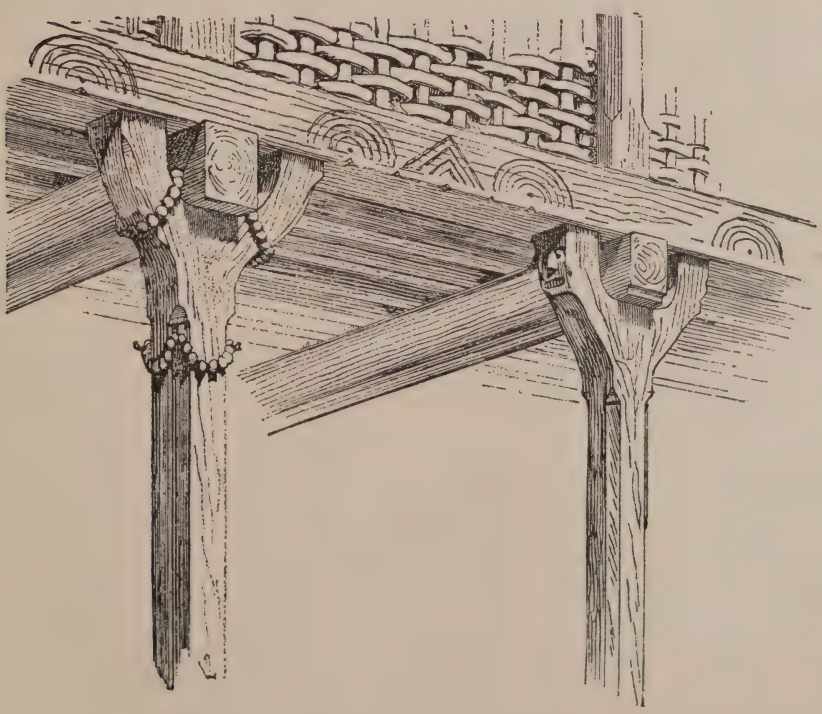
We are familiar with all the capitals of the ruins of Persepolis; among them are many having the form indicated in Fig. 6. Now, even to this day, the peasants' huts in Assyria and Persia have roofs supported by forked posts, as represented in Fig. 7; this fact doubt-

Figs. 6 and 7.



less gives us the origin of the stone Persepolitan capitals. This forked form has a double advantage; it not only supports the lintel or girth

Fig. 8.

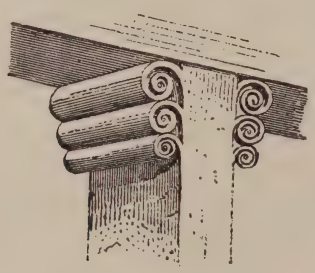


along the face of the building, but it allows the insertion, between the forks and under the girth, of a horizontal beam perpendicular to

the latter, to support the joists of the floor, which is thus included in the thickness of the lintel or girth on the face of the building. Fig. 8 explains this primitive carpentry, in which the advantage is gained of avoiding the mortises and tenons used to effect similar results when tools and all the means of construction had been perfected.

Such are the wooden structures which were imitated in stone by the nations of Asia. What remains to us of their monuments, whether built or excavated in the rock, demonstrates this fact in the most striking manner. If still more remarkable examples of this fact are needed, observe, in the engravings of M. Texier, the rock-cut tombs of Asia Minor, — those crypts whose bays might almost be mistaken for constructions in wood. The primitive structures of Central America * present the same peculiarities. Imitations of primitive wooden construction, even in the most minute details, appear in the earliest Eastern structures. Thus we frequently see on the summit of pillars successive rolls, or volutes, —

Fig. 9.



a decoration represented in Fig. 9, evidently suggested by the shavings left by the carpenter when bringing his wooden posts to a square. The ornaments of the structures include chaplets of beads and a quantity of that kind of engraving so easy to execute in wood, and of which all primitive peoples are so prodigal. If from details we pass to the examination of general designs, we discover in India certain stone edifices, which singularly recall the wooden pyramid described by Vitruvius, that is, an assemblage of tree-trunks or bamboos laid horizontally upon each other in retreat from the base to the summit of the roof; † we find others which dis-

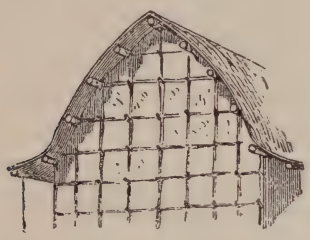
* Among others those of Chunjuju and Zayi.

† The temple of Barolli, the pagoda of Kanaruc, etc.

tinctly recall the form of immense baskets of bamboo wicker-work, adorned with garlands of pearls, little figures, bands, and rings.

Houses are still built in India with vertical walls of bamboo wicker-work, plastered with clay, and roofed in with wicker-work, covered with leaves, reeds, or osiers (Fig. 10). In the same country some very ancient buildings in stone reproduce this form.

Fig. 10.



To conclude this general review of wooden constructions, let us examine the Lycian sarcophagus, at the British Museum, a work which durably reproduces monuments which were built of wood in that country at a very remote epoch. It is cut in three blocks of stone in the form of an enormous wooden chest, with all its details of framing, including posts, cross-pieces, rafters, and panels, like a great wooden cover over a sarcophagus of marble. If, as its sculpture leads us to suppose, this tomb is not a work of a very remote period, it seems to afford us additional proof that when the people of Asia Minor and Greece undertook to imitate wooden construction in stone they followed that construction very frankly. The modillions or mutules with which it is adorned, unlike those of the Greek temple, appear only on the sides, and its posts are square in section and not cylindrical. It has a curvilinear gable roof resting upon purlins, in all respects according to the primitive conditions of wooden structures. The ridge is in the form of two planks carved on the exposed faces. The joists of the intermediate floor are represented as notched upon the longitudinal cross-beam, as if to prevent the spreading of the frame, and the extremities of the joists of the upper floor are secured between two plates or binding-pieces. The feet of the four posts are fastened to the two barrow-shafts of the sarcophagus by means of keys perfectly indicated. This monument, therefore, not only reveals the curious fact that originally,

among the people of Asia Minor, the body was placed in a stone or marble sarcophagus, covered by a wooden chest, but, in a wider sense, it proves, for the reasons indicated, that the Greek temple is a stone construction, and not an imitation of wooden construction.

It is worthy of remark, meanwhile, that, if the immense continent from China to the Caspian, from the Black Sea to the Persian Gulf, has at all times — thanks to its high mountains, to the extraordinary fertility of its valleys watered by great rivers, to its swamps and its climate — supplied wood of all kinds in abundance, the same cannot be said of Greece. I admit that its soil, now quite stripped, may have nourished some forests; but what were these, compared with the luxurious growths of India? Greece never possessed the gigantic bamboos and reeds of that country, which are so well adapted to building, and if forests fit for such purposes ever did exist there, they must have soon disappeared. Let us, then, examine the real construction of the Greek temple.

In the first place, what are the conditions to be fulfilled? It is required to build a *cella*, or enclosed room, surrounded with porticos to protect and shade it. Nothing is more simple: four walls, pierced on the two ends with doors; around, a series of supports bearing lintels, themselves protected by a projecting cornice; and, above the whole, a roof sloping over the two longitudinal sides to shed the rain. These conditions are dictated by reason alone. How are they met?

The architect seeks a quarry near by. He experiences no difficulty in this respect, as Greece and Sicily are well supplied with limestone, and as Greek cities are generally built on the level summits, or on the sides of hills, with an acropolis in the midst, that is, a rock with natural or artificial steeps, and in the neighborhood of promontories and mountains, all furnishing abundant material. The quarry found, the architect, in the absence of those powerful appliances of machinery with which modern science has rendered us familiar, has only the main strength of slaves to move his material; he therefore endeavors, as far as possible, to avoid the necessity of transporting heavy blocks. But his traditions, the antecedent arts of Egypt and the East, with which he is familiar, exact the employment of materials of considerable dimensions, the vertical support and the lintel being the only system of construction used. His first task, then, is to adapt these requirements to the means of execution at his dis-

posal. This difficulty, instead of dismaying him, stimulates his artistic genius. It is a difficulty solved by *art*. He considers with reason that the *cella* of his temple, as it is only a wall with two faces, one within and one without, may be built with materials of small dimensions. To construct a wall of ordinary thickness with materials not occupying the whole of this thickness, but with rectilinear blocks finished only on one face and laid back to back like thick flagstones, is bad construction, but, under the circumstances, good logic; and, as the Greek is an excellent logician, he has his rectilinear blocks fashioned at the quarry *with only one face finished*. With these he constructs his *cella*. But he perceives that double walls built thus with separate stones for each face need tying together; to effect this purpose he occasionally lays bond-stones through the whole thickness of the wall, and finished on their two ends.

He now requires columns as vertical points of support in his peristyle or porticos; he sees that, to obtain a condition of perfect stability, these isolated piers must be composed of blocks as large as possible. The quarries and the means of transport at hand rarely enable him to erect monolithic posts. So, on the side of some cliff in his quarry where the limestone bed begins, he selects the thickest layers of stone, on the upper surface of which he traces a circle of the diameter which he thinks proper for each column; thence down the upright face of these layers or strata he cuts away enough stone on each side to enable the quarrymen to work at the shaft; thus he disengages a short cylinder or drum from the living rock. When the lower bed of the stratum is reached, completely separating the cylinder, which he has thus excavated, from the face of the cliff, he lays it on its side and rolls it to the base of the slope. Here he cuts a square hole in the centre of each of its circular ends, and fits into them two pivots; then, by means of a cradle and ropes, he rolls it to the site of the temple. Thus the cylindrical form which he adopts for his largest stones is a practical necessity to facilitate transportation. These are not mere hypotheses, as, even to this day, the quarries near Selinus, in Sicily, called *cava di casa* (building quarries), exhibit these successive operations. Here enormous cylinders, not less than eleven feet five and a half inches in diameter, and from six to nine feet long, are still engaged in the limestone bed, others have rolled by their own weight to the base of the declivity,

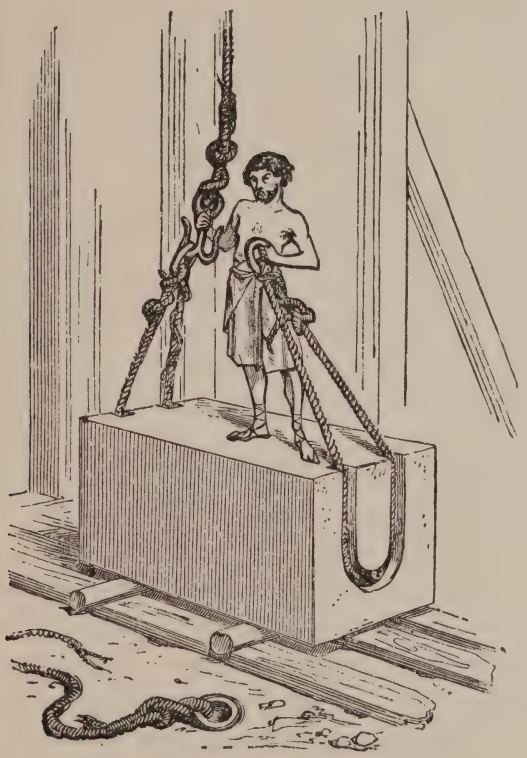
and others are actually *en route* for the site of the proposed temple, with the square holes cut in their ends. These blocks were left in this condition on the cruel destruction of that flourishing Greek colony by the Carthaginian invasion. No ruin causes a deeper emotion than these traces of human labor, fresh as if left but yesterday by the workmen.

But the columns of the temple are not the only blocks of large bulk required. The lintels, which are to stretch between the summits of the columns, must necessarily be of considerable size, if the temple is to be large. The Greek architect, in procuring these blocks, proceeds in the same manner as when building the walls of the *cella;* he makes each lintel of two long stones placed back to back with a joint between, having one finished face on the outside and one on the inside of the portico. Experience soon discloses to him that this arrangement has other advantages besides the facility of transportation thus obtained; for all calcareous stones, including marble, are liable to flaws or natural lines of breakage, invisible at the time of quarrying, but which, under a superimposed burden, at length betray themselves and occasion irremediable fractures in the lintel. But two lintel stones laid back to back have two chances to one in favor of resistance against any such casualty, for if one of the stones is defective, the other, its twin, maintains the weight above and thus prevents any immediate fall. The Greek architect invariably employed this expedient when he used limestones, like those of Sicily, whose power of resistance is not very considerable.

The architect now proceeds most ingeniously to elevate and set in place all the materials thus brought to the site. As regards the cylindrical drums of his columns, he avails himself of the square hole cut in one of their circular ends, and dovetailing it with tenons, applies the *slings* or iron pincers, and thus elevates it perpendicularly to its place on the pile; for these blocks, being laid with dry joints, without wedges or mortar, must reach their destined position, suspended, and, once laid, cannot be disarranged. All the means of suspension must then be so contrived as to leave free the beds of the joints. The capitals are easily raised in a vertical position by means of their projecting corners. But the long and thin lintel stones, which are laid end for end, and therefore have two sides concealed in the joints, and exhibit one or two vertical faces besides the under

side or soffit, visible when looking up between the columns, must be attached and hoisted by the two ends; the architect prepares for the suspension of these blocks by cutting in each of the two vertical end-faces of each block a channel formed like a U, and deep enough to admit a cable easily, as indicated in Fig. 11. When

Fig. 11.



the stone is mounted and laid in place, the cable is drawn out from the grooves. The art of laying stones with dry joints was practised among the Greeks with rare perfection. In this case, the blocks cannot be brought up to stages of scaffolding placed at different heights and finally laid in their beds by means of crow-bars and wedges, according to the modern fashion; but must arrive exactly over their several destinations, there to be deposited gently and with precision. If deposited athwart their bed, the appliances for lifting would not be found strong enough to remove them by reason of the close adherence of their perfectly smooth and closely fitting surfaces. The necessary precision of position, therefore, can only be obtained

by the use of great sheers brought and stayed successively above each column, and then above each intercolumniation, to hoist the lintels, or architraves, the trigylphs, metopes, cornices, etc. In this connection, we should not forget that the Greeks were a nation of sailors, and therefore their constructive appliances must have been made with skill, simplicity, and perfection.

The means thus briefly explained, let us now examine the work itself; let us see the Greek temple actually in course of construction. The wall of the *cella* built and the column smoothed, the architect observes that the horizontal blocks, the lintels which extend from one column to another, may, on account of their length, be subject to fracture under the superincumbent weight; he therefore places on the summit of each column projecting blocks or capitals.

The abacus, or crowning block, of the Doric capital is square in plan; its two side faces, by reason of their projection, increase the surface of support under the lintel or architrave, but its projecting exterior and interior faces carry no weight. If the Doric capital were, as is maintained, an imitation of a wooden capital, these last two projections of the abacus jutting out beyond the outer and inner faces of the architrave would be unreasonable, as I have already demonstrated. But in stone these projections are perfectly justifiable; for, if the columns are built with successive courses of tambours or drums, the architraves or lintels, which must be long enough to extend between the columns from centre to centre, and deep enough to bear a superincumbent weight, become the largest blocks used in the Doric order. Now, we have shown that these blocks are raised by their two extremities to be covered in the close joints. To deposit such heavy stones exactly on their two beds, that is to say, on the abaci of the capitals, without making the columns deviate from the vertical, required delicate, precise, and safe handling. The exterior and interior projections of the abaci greatly facilitated this operation, as they enabled temporary beams of wood to be laid across from column to column inside and outside of the bed of the proposed architrave, thus not only steadying and keeping the columns in line, but giving foothold for the masons, while gently and exactly guiding the architrave stones to their beds on the summits of the capitals and between the beams, without the necessity of more scaffolding. It must be observed here that all primitive constructors were sparing in the use of scaffolding; they did not like (and the Greeks less than

all others) to erect temporary and apparently useless works, that is to say, such as were not to leave permanent traces in the structure where they were employed. Some Greek temples, like those at Segeste, are unfinished, and still remain as the workmen left them; in these we see that the materials composing the monument, far different from our own customs in this respect, were raised to their places by the simplest mechanism of suspension and deposit, and that the constructors sought, as far as possible, to avail themselves of the structure itself for a scaffold, making use of the various projections to lay temporary longitudinal and transverse beams where necessary.

Above the architraves we find only small stones used. This was evidently one of their many concessions made to avoid needless expense and difficulties of execution. The frieze, laid upon the architrave, is but a succession of little blocks (*triglyphs*), between which slabs (*metopes*) are placed edgewise, with a backing sometimes constructed in several courses of brick. The cornice has but slight projection, and does not bear on the whole thickness of the frieze, extending back only far enough to maintain an equilibrium. (See Plate II.)

The constructor remedies by his intelligence whatever difficulties may arise from his spare use of material; he observes, for instance, that the drops of rain, according to a physical law, follow the under horizontal surface of the projection of his cornice; he therefore, in order to avoid, as far as possible, the defacing effect of the wash of rain-water, inclines this surface upward, so that the water, when it has run down the perpendicular face, may fall on reaching the lower edge.

These are improvements resulting simply from the application of reason to the work in hand. But this is not sufficient: art now intervenes. This monument is built under a pure sky, through which the sun shines brightly ten months out of the year. The artist observes soon that the cylindrical columns of his temple, by an optical illusion, appear larger at their summits than at their bases; this offends his reason as well as his eyes; so of his cylinders he makes truncated cones. This diminution of the shafts (*entasis*) had, perhaps, already been required by considerations of stability. Again, he notices that the intermediate blocks (*abaci*) between his shafts and the architrave seem to crush the columns by their weight; so, leaving these blocks square in plan where it is necessary to satisfy the

requirements of solidity and strength (that is, under the architrave), he cuts them beneath in such a manner as to make the circular section of his shafts meet this square with a salient curve (the echinus). But the artist is not yet satisfied. His columns appear flat where the light strikes them, and tame and indecisive where they are in shade. To obviate this, he cuts his shafts longitudinally through their whole height in a series of flat faces; then he hollows out these faces so as to form channels (*flutings*), deep enough to catch the oblique light on their edges, but not so deep as to incommode those who pass along the colonnade. The sunlight, repeating thus on each one of these columns a series of vertical lines of light and shade, differing in width and intensity, defines that which would have been lost while the columns remained merely smooth diminishing cylinders. He feels that, in order to make the eye comprehend the full value of a form, the principal lines of that form must be repeated, in the same manner as the sentiment of a musician leads him to define a principal phrase by returning to it often in the course of his melody; so the vertical line of the column is emphasized by repetition on its surface. But the artist is conscious that he must not fatigue the eye by any exaggerated persistence in this method of defining; he cuts upon his shafts only channels enough to produce the desired effect. The necessity of employing materials of large size stops, as I have already explained, when his columns, with their capitals, and his architrave are in place; upon his architrave he only needs to lay small squares of stone. At first, in the axis of his columns, or above each joint of his architrave, which is crowned with a fillet, and over the centre of each intercolumniation, he places isolated blocks, that the superincumbent mass may bear as little as possible upon his architrave. But he is a Greek: he desires that his judicious combination shall clearly explain itself; so, on the exterior face of each one of the squares of stone, placed thus between the architrave and the cornice, forming as it were little isolated pillars, he carves a triglyph, that is, he cuts upon this visible face vertical channels, which, according to the same feeling, the same just reasoning, which led him to make use of a similar expedient to illustrate the function of vertical support in his columns, denote a member which *bears weight*. The triglyph is thus a vertical support, and he distinctly indicates this fact.

The Greek architect exhibits all the qualities of a reasoner; he

concerns himself to demonstrate to all eyes that the various parts of his monument have each a useful necessary function; he shrinks from the accusation of having sacrificed to caprice; it is not sufficient that his monument *is* solid, he tries to make it *appear* so. But if he never conceals the contrivances which he employs, his artistic instinct urges him to clothe every member with a form admirably chosen for the place it is to occupy; with regard to the effect it is to produce, his good taste saves him from that pedantic persistency which fatigues the public, and, by abuse or excess of reasoning, makes reason hateful.

The spaces (*metopes*) left between the triglyphs in the frieze were usually filled each with a square slab on edge, as we have already said, sculptured with bas-reliefs; but it appears that originally these spaces often remained open. In the tragedy of "Iphigenia in Tauris," Orestes and Pylades propose to enter the temple of Diana and take away the statue of the goddess. Pylades suggests that they effect an entrance by passing through the openings left between the triglyphs. "Behold," said he to Orestes, "where, in the space of the triglyphs, there is a void through which the body can pass." The Greek text does not say *between* the triglyphs; but Pylades was not an architect, and, in general language, would say, *in* the triglyphs or in the space of the triglyphs, just as people now might say *in* the balusters when they mean *between* the balusters of a balustrade. This passage from Euripides has for us a double interest: Pylades could not have referred here to the spaces left between the triglyphs above the columns, as the two heroes would by this means have only introduced themselves into the open portico to which of course access might readily have been obtained as usual between the columns; but the text seems to refer to triglyphs placed on the wall of the cella, where, indeed, it is not uncommon to find that feature. If we may suppose that the spaces left open between these triglyphs were intended to admit air and light into the interior of the temple, it would be reasonable to infer that the cella was completely covered.

The Doric order, therefore, as indicated in Plate II., is not, it seems to me, a distant tradition of a construction in wood, as generally supposed, but plainly a construction in stone. The columns, by their cylindro-conical form, the capitals, with their square abaci, the whole entablature, with its triglyphs, its incrusted metopes, its cornice with inclined eaves, the way in which all the members are super-

imposed, indicate plainly everywhere *stone*, quarried, cut, hoisted, apparent by reason of its nature and function wherever placed. Wood, indeed, has its part to play in the Greek temple, but a part completely secondary and distinct from the construction in stone.

In fact, every detail connected with the Greek temple is a direct proof against this popular theory. The Greeks were too sensible ever to have laid upon an architrave or cross-beam of wood joists of such size as are indicated by the triglyphs (according to the supposition that those members represent the ends of the joists), merely to extend across a portico of from seven to ten feet in width. Moreover, the joists of the wooden ceiling of the portico, or, if of stone, its lintels and slabs, were not laid upon the architrave, but upon the frieze and *above* the triglyphs, as is still indicated by the space and projections reserved for this purpose in all temples. This space intimates that the rafters so used were only of the size proper for the duties they had to perform, that is, from six to ten inches square, or, if stone was used as a ceiling for the portico, that a rest was left only large enough to sustain the horizontal slabs. But as triglyphs have been regarded as representing the ends of the ceiling joists, so the sloping eaves (*soffits*) of the cornice have been thought to indicate the ends of the rafters. Admitting that this theory is probable as regards the two lateral sides of the temple, how can it hold good for the two ends under the gables (pediments), where no ends of rafters can project, but where the cornice is continued in the same manner? Greek artists were men of too good judgment to commit so gross a solecism. If the theory were correct, the sloping eaves would have been omitted under the pediments, and, as we have seen, when the Greeks really did imitate wooden construction, they reproduced everything frankly and minutely; the ends of the purlins, or longitudinal beams supporting the rafters at right angles to them, would have been represented here under the projection of the cornice. We have seen that in the Lycian tomb (Plate I.), an imitation of wood in stone, these conditions are strictly followed out; the ends of the purlins appear on the gable ends, but those of the rafters are properly confined to the sides.

The Greek temples really are monuments in stone, in which the principle of the lintel has been intelligently and elegantly developed. Why not accept them for what they are, instead of supposing that

the Greeks, who invented logic, and were endowed with the most delicate sentiment, would amuse themselves with such an absurdity as imitating in stone a construction in wood? Such things might be done among the Assyrians and the people of Asia Minor, but it is quite to misunderstand the genius of the Western Greeks to attribute any such follies to them.

It is by such interpretations of the origins of antique and mediæval architectures, — interpretations more ingenious than rational, — that a false direction has been given to the study of art, and consequently to the spirit of artists. It is useful, we think, to explain monuments by what they are, and not by what we wish them to be. The Greek temple is copied from the wooden hut, just as the mediæval cathedral is copied from the forests of Gaul or Germany. Both theories are romances fit to amuse dreamers, but dangerous, or at least useless, when they are taught to men destined to become architects.

But let us return to the construction of the Greek temple. The Greek architect admits symmetry, for it is an instinct of the human mind; but he does not allow this instinct to triumph over his reason. In building his temple, he has begun by making the cella, the precinct reserved for the divinity, an independent construction, a comparatively small stone enclosure, around which he has planted the columns of his portico (*peristyle*), admitting between the enclosure and the columns a passage extensive when compared with the dimensions of the cella. He does not trouble himself to place the second columns of his portico, or peristyle, exactly opposite the pilasters (*antæ*) which form the corners of the cella, for he perceives that in perspective this correspondence would have no value. His only preoccupation is to rest the wooden ceiling of his portico on the walls of the cella and the interior frieze of the peristyle. But with regard to the angles of his peristyle, his reason leads him to disembarrass himself still more frankly from what we call the laws of symmetry. He sees that the isolated columns of the corners must necessarily carry a heavier weight than the others, and he distrusts the strength of the architrave stones which rest upon it; he foresees that, if one of these stones should break, the column on the angle would be forced outward by the fall. For this reason, and notwithstanding the laws of symmetry, he deems it prudent to augment the diameter of this column and to lessen the distance between that and the next

columns on either side. This difference of intercolumniation permits him to place a triglyph on the angle of the frieze without sensibly increasing the intervals between the three last triglyphs on each face, thus satisfying another requirement of reason in giving a point of support to the cornice on the corner where such support is most needed.

These difficulties of composition resolved, the architect proceeds to the study of details. He has remarked that, when it rains, the water, uniting with the deposit of dust on the vertical face of his exterior cornice, leaves there, as it runs down, unsightly stains, obscuring the purity of that part of the extreme projection of his structure which he desires to be brilliantly defined against the blue sky. He therefore lays upon this cornice-stone a gutter of marble or terra-cotta, and at intervals along its length he furnishes it with spouts to project the accumulated water from the face of the cornice; but the gutter itself, exposed to the rain on its face, is easily soiled, and to conceal this defect, he covers it with sculpture or painting.

The more closely the man of artistic instincts observes, the wider the field of observation opens before him. But the observation of the philosopher and that of the artist differ in their results. The philosopher observes to compare, to deduce consequences, to *know*, in a word. The artist observes, but does not stop at the results; from these he proceeds to labor with or against physical laws, to augment, modify, or destroy the effects produced by them. The artist observes that a cylinder in strong light receives but one mass of light and one mass of shade; he modifies this effect of a physical law by means of perpendicular channels, to recall the light in the shade, and thus force the light to model his column. He observes that the large square abacus of his capital, during the greater part of the day, produces a broad shadow over the top of his shaft, and that this shadow, rendered very transparent by the direct reflection of the light from the ground below, is so luminous that the junction of the capital with the shaft is lost; he sees that this effect is feeble and indecisive, and that it detracts from that apparent architectural solidity which should be carefully preserved at the point where the vertical lines of light and shade produced by the flutings cease. He therefore at this point of junction between the capital and shaft cuts a series of deep horizontal lines; and, still to increase the vigorous effect of these lines of sharp shadow,

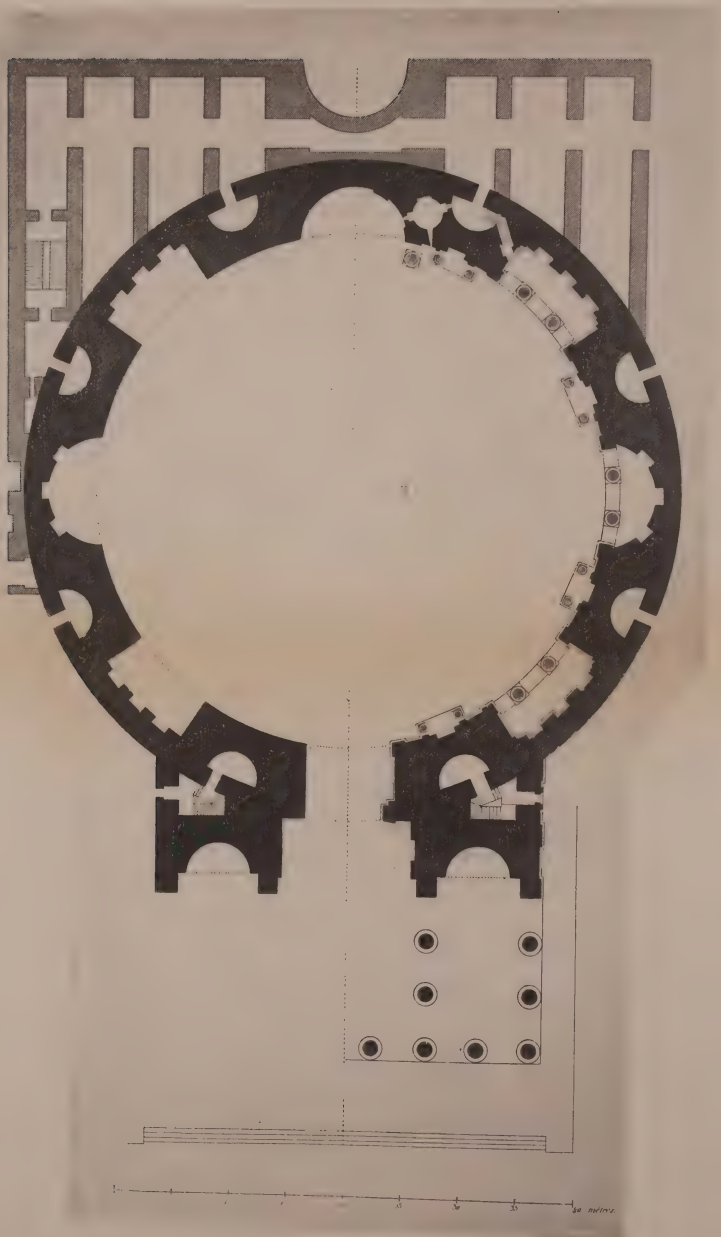
he colors them with a sombre tone, and thus destroys an effect of shadow which offends his artistic feeling. He has observed that the reflected lights in shadows are themselves luminous. He has remarked that the shadow under the abacus, whose faces sharply intercept the light, is so positive, the transition thus made so violent, that the summit of the shaft is apparently lost, and the architrave has the effect of resting, not on a solid form, but, as it were, on a void. Now, his intelligence as a constructor demands that the capital must have a decided projection; he therefore cannot diminish this projection in order to lessen the objectionable effect of shadow. How is the difficulty to be solved? He discovers that moulding, so profoundly reasoned and so delicately rendered, the *echinus*, which encircles the summit of the shaft and bears the abacus. At its point of junction with the abacus he gives this moulding a sudden turn inward (*quirk*), so that at the point where it becomes tangent to the face of the abacus it catches a brilliant spot of light, which, repeating the light on the abacus, is lost in a graduated demi-tint towards the neck of the column. He thus blends the too brilliant light of the abacus with its too positive shadow; then, not content with this first result, he inclines the curve of this moulding downward towards the neck of the shaft, making it nearly a section of an inverted cone, so that its surface may receive from the illuminated ground below or from the neighboring walls as much reflected light as possible. Thus, with incomparable skill, availing himself of the natural effects of light, shadow, and reflection, delicately studied, he satisfies the desire of his eye, and obtains that expression of solidity which his reason demands as essential to that part of his composition.

The Greek Doric orders are in the hands of all those who occupy themselves with architecture, and each one can readily verify for himself the exactness of the observation of the Greek architect. For him the sun is evidently the generating principle of exterior forms. He perceives, for instance, that, at a certain distance, the columns of his temple, though fluted, when they receive light perpendicularly to the wall of the cella, are not apparently detached from that wall, but that their lights are confounded with that which falls on the cella, and their shadows, thrown upon its wall behind, appear completely to disarrange the distribution of columniations and intercolumniations, solids and voids, in his peristyle. To obviate this difficulty, the

architect calls the painter to his aid and instructs him to lay upon this wall behind the peristyle a vigorous tone, a brown or a red, which shall absorb the light; and lest this expedient may contradict the constructive expression of the building, he takes care to trace upon the wall, from distance to distance, clear, fine, horizontal lines, recalling to the eye the horizontal courses of stone, and, seen between the columns, which are distinguished by vertical lines, clearly separating the construction of the wall in the rear from the supporting members in front of it. This application of color to the exterior of monuments is so necessary in a country like Greece, where the air has a marvellous transparency, that to-day, for example, he who from a certain distance looks at the temple of Theseus at Athens, now deprived of its colors, when in full sunlight, finds it impossible to distinguish the lights on the columns from those on the wall of the cella behind them, these lights, though on different planes, being confounded and appearing to be projected on the same surface.

Thus, if we take one by one all the details of a Greek temple and study them separately and in their direct relations with the whole, we shall always discover the influence of that judicious and refined study which is the beginning of true art, of that exquisite sentiment which submits all forms to reason, not to the dry and pedantic reason of the geometer, but to reason directed by sense and by the observation of natural laws.

This rapid glance at the *modus operandi* of Greek artists is sufficient to show that if the Parthenon is in its place at Athens it is but ridiculous when imitated at Edinburgh, where the sun is obscured by mists during the greater part of the year; it proves, moreover, that if Heaven had endowed the inhabitants of Edinburgh with feelings as refined and artistic susceptibilities as acute as those of the Greeks, they would have adopted a very different method of construction there from what was prevalent on the shores of the Archipelago and the Mediterranean. *Art* does not consist in this or that form, but in a principle, a logical method. We cannot maintain that a certain form of art is art absolutely, and that everything outside of this form, like the art of the Iroquois or of the mediæval French, is necessarily barbarous. The question is, not whether the Iroquois or the French, in their respective forms of art, were like the Greek in *his* form of art, but whether, in adopting their peculiar forms, they proceeded in like manner according to rational principles; whether



THE PANTHEON.

PLAN ON TWO LEVELS.

they approached the Greek spirit in making their architecture differ from that of the Greeks in the same proportion as their climate, their requirements, their habits, differed from those of Greece. But it must not be inferred that the study of Greek art is useless, because no one now can seriously recommend us to imitate it; on the contrary, it is indispensable to the architect, provided he does not limit himself to an acquaintance with forms merely, but deduces the principles under which not only Greek art but all true expressions of art have been developed. It is barbarous to reproduce a Greek temple at Paris or London; for such reproduction betrays ignorance of the principles which inspired the original, and such ignorance is barbarism. Yet it is barbarous not to study Greek art with profound attention and minute care, because this art developed its forms under the immutable principles of truth more consistently than any other, and because it understood and invariably followed those principles. It is barbarous, moreover, not impartially to recognize consistent subjection to such principles, wherever it may be found.

We have shown how the Greeks were accustomed to sacrifice symmetry when it interfered with an intelligent and reasonable disposition of architectural details. But this fact may be observed, not only in the details, but in the general compositions of the Greek architect. The Erectheum of the Acropolis at Athens is a very striking instance of this phenomenon. This structure, as every one knows, is a group of three temples or rooms of unequal importance, with three porticos on different levels; two of these porticos are Ionic, and one has its entablature supported by caryatides. Not even in Gothic architecture, which is regarded as especially independent of the laws of symmetry, can a single monument be found more apparently capricious, or (to use a modern phrase) more picturesque than this. Its irregularity arose from several causes. It was situated on the northern extremity of the plateau of the Acropolis, and at a point where the rock began to shelve off towards the north before descending abruptly in a precipice. It was a sacred spot; the monument was destined to cover the fountain which Neptune caused to burst forth from the earth with a stroke of his trident, and the olive-tree which Minerva produced. The ground therefore could not be disturbed. Though the architect of the Erectheum was thus obliged to respect the natural levels of the rock, he gladly availed himself of the irregularity of the site as presenting a new and original problem,

to erect a monument of an agreeable aspect in disregard of the vulgar rules of symmetry. It would seem even that he welcomed difficulties, not to conceal the irregularities of his plan and elevations, but to triumph over them with a bold stroke of genius, to express these irregularities by a great variety in his design. This little Greek monument is justly regarded as a masterpiece. But where is the architect of the present day who would dare so completely to free himself from the laws of symmetry, and, in doing so, could develop such exquisite grace of detail and beauty of execution? At Athens this audacity might be permitted, because the artist knew that he was in the midst of a people artistic enough to comprehend the motives of such boldness; and if the Athenians "spent their time in nothing else, but either to tell or to hear some *new thing*," the architect, who had intelligently followed the inspirations of his taste, was not wanting either in the ability or the opportunity to defend his work triumphantly.

Let us therefore suppose the Erectheum finished and the rubbish of the workmen removed; from the crowd of curious spectators, argumentative, impressionable, apt at epigrams and sarcasm, like all Athenians, a critic steps forth and says to the architect: "What caprice is this? Why these three monuments huddled together as if by chance? What is the meaning of this smaller portico whose entablature cuts into the *antæ* of the cella? Here are three façades, one in front of the cella, another on a lower level projecting from the flank, and forming a re-entering angle, an L, against the other extremity of the main building, as if this second portico was too large for the place it occupies; and here is still a third, small and low, its cornice supported by caryatides, and built, not in the axis of the cella, but on an angle with it. What confusion! How can any one viewing this building under one of its aspects form any idea of the others? Here, besides, on one side, we have a great door giving access into a little room, on the other a small door on a higher level opening into this same room. Are the treasures of the republic to be squandered in works like this, justified neither by good taste nor by reason?"

To this discourse the Athenian architect may be supposed to reply: "He who talks so thoughtlessly, O Athenians, is probably a stranger, since it is necessary to explain to him the principles of an art in the practice of which you surpass all other nations! He has certainly

not taken the trouble to walk a few steps about this Acropolis or in the city and to look about him, before coming here to pass judgment on an edifice of whose sacred destination and locality he must be ignorant. But for his sake, if not for yours, I will give the reasons which have guided me in this work, so that he may know that an Athenian architect, jealous of his own reputation and still more so of the glory of his native city, does nothing until he has maturely reflected on the requirements and various aspects of the monuments whose construction is intrusted to his hands. You are aware that I have been called upon to build three temples, or rather two temples united, one consecrated to Neptune Erectheus, the other to Minerva, and a small temple or shrine dedicated to Pandrosus. This is not the place to speak of sacred things, but you know whether I would have been justified in meddling with the sacred soil I was required to protect; now, although the fountain of Neptune is situated on a higher level than the olive of Minerva, you behold here both sanctuaries under the same roof. Observe, moreover, O Athenians, in what part of the Acropolis we stand; see how we almost touch its northern ramparts, and how at this point the ground falls away! Only fifty feet to the southward rises the great temple of Minerva. Facing the east I have constructed, in front of the cella consecrated to Neptune and on a level with it, a portico, both forming a harmonious whole. But on the north side why should I have given to the portico of the sanctuary of Minerva the importance belonging to that of Neptune? The problem was to construct on this favorable exposure an ample shelter from the oppressive heat of the sun, but so to dispose it as not to interfere with the space necessary for the defenders of the ramparts. I have therefore assumed as the axis of this portico the door of entrance to the sanctuary of Minerva; and in order to protect this portico from the south-wind and to shelter it, I have, as you see, prolonged the wall of the cella. I am reproached for having lowered this northern portico so that its cornice is not on a level with that of the two sanctuaries; but do you not see that thus I have subordinated everything to the principal monument, the sacred place? that if, in my desire, for reasons already specified, to give great width and depth to this portico, I had elevated its entablature to a level with that of the cella, this mere accessory structure would have had an undue predominance over the main edifice, and, for those of you who live below in that part of the city towards the temple of Theseus, it

would have quite concealed these sanctuaries from your view by the effect of perspective? Do you not see that I have succeeded in preserving a due proportion for this structure, and at the same time, by keeping the ridge of its roof below the cornice of the cella, I have obtained an effectual water-shed? Now, passing to the south side, where the level of the rock is higher, should I be justified in making the Pandroseum here rival in importance the porticos of Neptune and Minerva? Ought I not rather to indicate to strangers that this edifice, uniting in itself three temples, has two main entrances, and to give to this third and subordinate portico a less monumental appearance? And, further, look at the immense columns of the great temple of Minerva in full view yonder, opposite to us; what order would not have appeared mean in the presence of the majestic peristyle of the Parthenon? In placing the cornice of this little portico on caryatides, I have escaped all comparisons, and saved you, Athenians, from the possible reproach of having repeated in little that which has been done on a grand scale by our predecessors. Again, had I adopted for this portico the Ionic order, what delicacy of execution and refinement of detail could have rivalled the stately grandeur of the order of the Parthenon? It is a principle of our art which you understand as well as I, that an appearance of meanness or parsimony, especially in sacred things, should be carefully avoided. It would not be well for the stranger, arriving at Athens and beholding from afar, on the heights of the Acropolis, two temples near each other, one enormous and imposing, the other small but of a character of design so near like its neighbor as to challenge comparison, — it would not be well for him to be thus justified in exclaiming, What great god is this who has a temple here, and what little god has his temple by its side? Thus, you perceive, Athenians, that in endeavoring to construct here sanctuaries worthy of these divinities, I have, by exceptional and perhaps strange dispositions, avoided such reproaches regarding the respect we owe to the gods. Perhaps if I had sacrificed less to the general aspect of the Acropolis, and built a temple divided in the interior but recalling in the exterior certain well-known consecrated forms, like that of the temple of Theseus, I should have obtained the praises of him who now criticises my work; but, I ask, even if in such case I had endeavored to avoid the reproaches I have referred to by adorning my diminutive copy of the Parthenon or Theseion with an order richer and more elegant than either, would I

have succeeded, would I have obtained a result as satisfactory as by applying such an order to an irregular monument like this, thus foiling its want of formal proportions by the abundance and delicacy of its sculptures? See how the sunlight plays among these projections, how the very lowness of the portico of the caryatides renders it a certain shelter from the heat all day long! Do you dream of making a comparison between this portico and that of the Parthenon, when observing how the supporting figures of the one seem at a short distance diminished to the natural size, and, turning towards the other, your admiring eyes are filled with its stately shadows?"

Thus perhaps the architect of the Erectheum would have spoken, and assuredly the Athenians would have felt that he spoke with wisdom.

One of the essential qualities of Greek art is *clearness;* that is to say, referring only to architecture, the pure, transparent expression of purpose, and of the requirements and means of execution. This quality of clearness or distinctness, the inseparable companion of taste, is evident, not only throughout the general structure of Greek buildings, always simple, intelligible, without equivocations or concealments, but in the details, in the sculpture and the monumental use of color which so harmonize with the architecture as to illustrate and not dissemble its forms. Sculpture, in a Greek edifice, never alters an architectural profile or outline; it is never attached but as a light embroidery, whose slight projections cannot destroy the sweep of the lines; sometimes, to obtain this result, the decoration is simply a system of engraving assisted by color. In that climate, the transparency of the air and the brilliancy of the sunlight betray the most delicate details at a great distance; the more directly monumental surfaces are exposed to this brilliant light, the less relief is given to their sculpture. But if the reliefs in the metopes and the statues in the tympana of the pediments have bold projections, it is because they are covered by the broad shadows of the cornices above and thus are modelled to the eye mostly by reflected lights. If the sun is low, these reliefs, receiving light almost horizontally, project but slight shadows, and thus, in either case, the architectural lines remain undisturbed. In all the Greek structures, edited and drawn so frequently and thoroughly, we find that decorative sculpture occupies but a very subordinate position in relation

to their profiles. The Greeks loved form above all things. Everything which tended to alter the harmony and unity of a composition they rejected. In their statues they instinctively preferred the nude. They only clothed their statues out of respect for religious proprieties, and these proprieties they disregarded as soon as they could: thus the earliest statues of Venus were necessarily clothed; but already in the time of Pericles their instinct had triumphed over their religious dogmas.

The Greeks were an isolated people, a colony of artists; as I have already said, there were no barbarians among them. So long as they were free from foreign influence, they were able to preserve the language of the arts pure from all alloy, unembarrassed by any concession; in uttering this language they were sure of appreciation and sympathy. We, on the other hand, to be understood, must yield to concessions without end. As regards art, there is with us no competent authority, because there are no convictions. We have schools, indeed, or rather coteries, disputing continually about principles which they do not practise, because no one is willing to admit them strictly. Some contend that the study of the arts of antiquity, classic art, should alone be honored by us; but if they build, they set the principles of these arts aside: others, less exclusive, perhaps, but also less reasonable, demand that the arts of the Middle Ages and of the Renaissance shall be taught; but if they build, while they are lavish of the elementary rules of such arts, they content themselves with reproducing an appearance, a similitude, up to a certain point where popular prejudice, *fashion*, exacts something else. In the midst of this strange confusion and these continual disputes, if we wish our studies to lead to a practical and profitable result, they should be pursued with discernment. This is peculiarly an age of inquiry, but the most philosophical researches, the most assiduous labors, will conduct us to the most bitter deceptions and most fruitless results, if we do not bring to these researches and labors a spirit of intelligent criticism, if we cannot shake off these poor borrowed rags which for the two past centuries we have regarded as the only proper garments. The study of Greek antiquity is, and ever will be, for youth, the surest initiation to the arts, the most substantial base for the cultivation of taste and consequently of common-sense, for these two cannot be separated. It teaches us to distinguish reason from sophistry; it enlarges the mind without confusing

it. However poetic the imagination of the Greeks may have been, it never led them astray from the limits of truth; they aimed above all things to be clear, intelligible, human; for they lived in the midst of men, and were men. As for us, though we admire these different expressions of Greek art, we must not reproduce them, for our life is very different; but what we can and should appropriate to ourselves are their eternal principles of truth; in a word, we should reason like them, but should not endeavor to speak the same language.

If the study of Greek art is necessary to architects, the study of Roman art, though differing essentially in principle, is not less so.

The spirit of the Romans was not that of the Greeks. The Roman was peculiarly a politician, an administrator; he founded modern civilization; but he certainly was not an artist like the Greek. He was not endowed with that instinct which so organizes all conceptions as to make them capable of being expressed in artistic forms. If we subject all Greek edifices to the same analysis that has been briefly applied to a single Greek temple, we shall always encounter the same delicate and appreciative spirit, capable of availing itself of every difficulty and every obstacle for the profit of art, even to the least detail. But the analysis of a Roman monument reveals to us other instincts and preoccupations. The Roman had regard only for generalities, the fulfilment of a need, the satisfaction of a desire. He was not an artist; he governed, administered, constructed. Form, to him, was a garment with which to cover his constructions; he did not concern himself to know whether a certain form was in perfect harmony with the body it enclosed, and whether all its parts were deductions from a principle. He did not trouble himself with such subtilties. If the architectural garment was ample and solid, if it was worthy of the object which it covered, if it did honor to him who decreed the erection of the structure, he was content, without seeking to fulfil in it all the conditions of art, as the Greeks did.

It is useful to trace exactly the line of demarcation between Greek and Roman art. To understand the qualities peculiar to these two civilizations is the best method of explaining the development of modern art and of appreciating the value of what we have already learned and what we have yet to learn from either; for if, in language, political customs, and material habits, we are Latins, we are Greeks in the character of our mind and genius.

The aboriginal or indigenous populations of Greece availed them-

selves of anterior arts; but they knew how to appropriate without copying, how to deduce principles by submitting these arts to a fastidious taste founded upon human reason. They invented neither general forms nor any system of construction; but they did what neither the Orientals nor the Egyptians, their predecessors, had done, they applied logic to the art of architecture. In this they became the fathers of the West, and opened the way to progress. Though under all circumstances they continued to love and cherish elegance of form, they preserved the purity of their principles in art only so long as their genius remained unoppressed by the Roman yoke, which indeed deprived them of their essential characteristics as Greeks. The Roman civilization under the Empire was like a great sea, engulfing the barbarisms as well as the original genius of the nations. Subjected to the Romans, the Greeks were only skilful practitioners; and this establishes the fact, that, for them as well as for all other gifted nations, self-government is the only condition for the healthy development of art. The Roman, by the necessity of his political and administrative organization, assimilated and made Roman everything he touched.

Yet, such was the native and inherent power of Greek art, that we find its traces through all the Roman domination even to the end of the Lower Empire; ay, and after that, for we can still detect its influence during the Middle Ages. We shall have occasion presently to study the character of these later developments, and we shall discover that this study embraces a most interesting period in the history of architecture and its derivative arts.

We have maintained that the arts of a nation develop independently of its political or social condition. Now, the architecture of the Greeks is precisely the expression of the intellectual state of the people; their genius was essentially artistic. They were not a nation, in our sense of the word, but an agglomeration of societies, whose condition was such as to foster the artistic sentiment. If they were the first to develop patriotic ideas (ideas foreign to Oriental nations even in our day), their patriotism was rather municipal than national, — a local sentiment, cherished by the alliance of individual interests within the limits of cities. So constituted, they were able to resist the armed hordes of Persian slaves, but they were promptly absorbed by the profoundly political organization of the Romans.

This distinction between nationalities and societies must be under-

stood, if we would know how the arts were successfully developed among the Greeks, and how a similar development is to be reached under our own different civilization. Meanwhile it is worthy of observation that the political condition of the mediæval republics of Italy was analogous to that of the ancient republics of Greece, and that accordingly Venice, Florence, Pisa, and Sienna, like Athens and Corinth, developed the most brilliant art.

The patriotism of the Athenian was not that of the Roman citizen or of the modern Parisian. In a town like Athens, all the citizens participated in public affairs and took a direct interest in them, as members of the same society. They were mutually acquainted, and interests were not diffused as they have become in our modern populations. Their patriotism was rather a sense of joint responsibility among members of an association, than the old Roman or modern European sentiment, which consists in preserving a political unity among provinces occupying a vast territory, often to the detriment of local and particular interests. Now, when men are ruled by this spirit of association, this *guild-feeling*, in which each one has, or thinks he has, a responsible part in political affairs, everything which they undertake is brought to an emphatic result: first, because such a union encourages a spirit of criticism; second, because each member, considering himself an integral part of society, must needs be exacting and fastidious; third, because such individualities, becoming powerful by patronage, are emulative, ambitious, and jealous, — an unfortunate circumstance, perhaps, for the public good, but very favorable to the development of the arts and all other works of genius, and, therefore, to intellectual progress; fourth, because public opinion or suffrage is the only appeal, and to gain such appeal requires incessant efforts to attract favor. The Athenian democracy, besides, had the advantage of leisure; all their business was transacted through slaves. They passed their days in the public places, under the porticos or in the gymnasium, conversing, philosophizing, interchanging ideas on innumerable elevated subjects. And we must not forget that the population of Athens and its environs numbered not more than thirty or thirty-five thousand freemen, of whom about twenty thousand concerned themselves in public affairs, and that the rest were sailors or soldiers, often abroad and often bringing back news and ideas. All the other intelligent cities of Greece were governed in the same manner, Sparta being the only aristocracy, and

this, unlike that of Rome, being exclusive and inhospitable; the gratification of pride was the only benefit the Spartan nobleman obtained from his social position; he was obliged to be poorer, worse clothed, and worse fed than his subjects; mutual contention or warfare was his only occupation, and it was only very late that a Spartan of high birth could become a politician. The aristocracy of Sparta did not concern itself with art; but we shall soon see how the aristocracy of Rome, otherwise constituted, could exercise an influence over the arts and know nothing about them at the same time. Now, why did the dangerous and unstable democracy of Athens afford just those conditions under which art could develop with the greatest energy?

Because the artist had to gratify, not a school, not a chief, not a sympathizing council, but the people; and, among the Greeks, *the people* were fastidious, critical, disputatious. If such a task is difficult, the recompense is precious when obtained; for success, won from such a public opinion, is the only reward which can really flatter the artist. When an entire population is to be the judge of a work of art, and when the instincts and education of such a population are such that their judgments are good, the artist is truly independent; for when the appeal is to such a suffrage, who would dare to confine the expression of his thought within the mere conventional limit set by academies and schools? But when, as among the Romans, the arts become part of the machinery of government, when they are administered, magnificence and grandeur may result; we may have a perfect expression of material wants, but the penetrating savor of individuality, the elegance effected by study, the originality which not only attracts but charms the senses, not only excites but gratifies the imagination, is lost forever.

Such is the infirmity of human nature, that art, even when developing individually and independently, free from academic pedantry and exclusiveness, is apt to fall from originality into mere correctness or eclecticism; common-sense becomes subtilty, and reason, sophistry, unless the artist is kept in the true path by the exactions of an educated public, like that of Athens or of Florence in the fifteenth century, impatient of such errors. In a merely political point of view the history of the Greek societies is but a record of wars and rumors of wars; they were not even bound together by the ties of a common religion. Yet, in the midst of this anarchy, the arts alone advanced,

were respected, and ruled. From the earliest heroic times art was the only bond of union among them. Thus Theseus, king of Athens, instituted the Panathenaic games at Athens, in order to procure from the people of Attica, by a sort of religious confederation, the recognition of that city as their metropolis. In the same manner all their institutions were obliged to assume a form of art to be received by the multitude. The whole Greek mythology is but a poetic envelope given to the phenomena, the forces and revolutions of nature. But the Greeks were not the inventors of mythology; I repeat, the Greeks did not invent, they but gave a form especially beautiful and choice to the physical and moral principles developed around and within them. Their religion and their arts proceeded alike from synthesis. The Athenians especially, who were the most religious, were also most inclined to make art rule over all things, or rather to convert everything into a work of art. Among them, an event, a fact, a phenomenon, good, evil, all that exists in the material or immaterial world, was translated into this language, with a delicacy of observation, a logical truthfulness, a simplicity and energy of expression, which seems almost superhuman. But faculties so precious could only be developed in the midst of a perfectly homogeneous society, all of whose members, moved by the same intelligence, understood each other, and were equally sensitive to the different expressions of art.

If we open Pausanias, we discover how, even up to his time, the productions of art were venerated among the Greeks. He often speaks of cities, in great part abandoned, but whose populations cherished a tender regard for their extinct splendors; of ruined temples preserving still their statues of the divinities, though often made of materials which were fragile or of such a nature as to tempt cupidity. At every step we meet a reminiscence consecrated by a monument. But, referring only to architecture, that which architects ought especially to observe in the Greek cities is their general plans, indicating how thoroughly their builders, even from the beginning, were inspired by artistic ideas. It is no exaggeration to say that such ideas were the first desires to be satisfied by the founders of cities; the choice of site, the aspect and relative dimensions of their principal buildings, the picturesque manner in which they were to be grouped, the feeling for beauty of lines, the general effect, — all these things were evidently foreseen and provided for.

When we reflect how little in our days considerations of this kind are appreciated, how slightly they influence the decisions of our modern building committees, we measure with sadness the immense abyss which separates us from those ages when the arts were really beloved. We are a civilized people; yet what are most of our towns, and what will they be in a few centuries, when very probably our gross and practical manner of satisfying material needs have forever masked or swept from existence the few rare remains of ancient art? What are the cities of the New World, what the industrial towns of England? That which we call civilization prompts us, in the nineteenth century, to make wide and straight streets, bordered by uniform blocks of houses. Thus our cities have become deserts for thought, and have all the fatiguing monotony of solitude without its grandeur. Through all these immense checkers of streets and squares, what souvenir is there to move you, where is the repose for the weary spirit, where is the eye to rest with gratitude or affection? Who shall say that a hundred generations have trodden these paths before us? I do not regret indeed the narrow and infected streets of our old towns, where houses thrown together by chance, crowded lanes, and venerable monuments, disfigured by shops and squalid with dirt, form but a disordered mass, a chaos without name; but at least we may find in the midst of this chaos some venerable relic of human thought and labor, some historical monument to be cherished with tender care, something which has not upon its front the mere mark of the practical and material interests of the day.

This is why those among us who are born with the love of art fly from these deserts of brick and stone, wood and iron, to be quickened among the ruins of Athens, of Syracuse, or of Pæstum; for to them these dead cities are more populous than are the streets of Lyons or Manchester.

The Greeks knew that an imaginative people must be addressed in the language of imagination; that they must be pleased, and would not be content with the mere satisfaction of material needs. If their cities still preserve in the midst of their ruins a perfume of art, it is because art was not among them a mere superfluous decoration; it ruled each structure, as a master, even from the laying of the corner-stone; nay, it presided at the foundation of the city.

Examine Agrigentum, for instance, one of the most beautiful Dorian colonies of Sicily, and see with what care the site of that

city was chosen. Near a well-sheltered harbor rises a ridge of limestone rocks running parallel with the shore; the Greeks made this chain of little hills the ramparts of the city on the side where attacks were mostly to be feared, and they cut the ridges of these hills into the form of thick walls pierced with gates. Parallel to these walls, on the level spaces of the rocky ramparts behind, they built a series of temples; thus presenting to the eyes of strangers entering the harbor a long line of monuments of very different dimensions, reposing on an enormous base cut out of the living rock. Between this natural rampart and the Acropolis in the rear, which overlooked the whole neighborhood, is a valley, at the bottom of which the city was built, its habitations securely sheltered from the inclement north and southeast winds of Sicily. On the south the city was bounded by a long range of limestone hills, whose summits were artificially levelled and occupied by temples whose outlines were strongly defined against the sky, and on the north arose the Acropolis, of whose monumental crown scarcely a vestige now remains.

At Selinus, another Dorian colony of Sicily, the temples were built on two plateaus, between which the harbor was situated. The relative positions of these monuments were chosen with rare taste and skill; and to isolate and distinguish them from the private houses of the city, they were elevated on high basements or terraced stylobates.

In this manner the Greek architect, faithful to his principles of availing himself of Nature and subjecting his compositions to her influence, examined his sites with rare sagacity. If he would construct a theatre, he sought along the slopes of the rocky hills, so frequent in the neighborhood of the Greek cities, some natural depression, of an aspect favorable to actors and spectators; then he proceeded to cut the amphitheatre of seats out of the living rock, completing by art those portions where the nature of the site was wanting to his design. The numerous theatres of the Peloponnesus and of Sicily afford complete examples of this arrangement. Favored by climate, the Greeks, in their civil monuments, were not governed by the necessity, peculiar to northern peoples, of covering and closing in. If they desired to bring together a great concourse, they contented themselves with building an enclosure, open to the sky and surrounded with porticos, or with simply arranging it on some rocky slope with a favorable exposure. They excelled in giving to these

primitive monuments a simple grandeur which never fell into exaggeration or *tours de force*, evincing no apparent effort, and causing none of that wonder or perplexity occasioned often by the ruins of dead civilizations. The remains of Greek art, instead of bewildering us with a superhuman exhibition of power, are peculiarly expressive of an actual life, which we, even when none but the faintest traces of those remains are left, can readily understand and appreciate.

Unfortunately, of the civil and domestic architecture of the Greeks we possess little more than these rock-cut vestiges. But Herculaneum and Pompeii may, by the exercise of imagination, realize to us the idea of a Greek city, and enable us to live for a moment in the midst of its population. By all that we can discover in these curious remains of Pompeii, by a few ruins here and there, by paintings, by the destroyed city of Segeste, we are led to the inference that the domestic architecture of the Greeks had as little variety as their religious structures. It is by no such quality that Greek architecture commends itself to our study. A good plan once found, the Greek architect did not consider it necessary to modify it essentially. He had too much good taste to seek after the fantastic, the capricious, the surprising. Those who truly love art do not exhaust themselves in search after novelties; for them good things are always new and always admirable; "a thing of beauty is a joy forever." The Greek architect felt this, and in perfecting his works he modified neither his principle nor his theme. He applied research only to refine his detail; and even when, in later times, research so applied fell into abuse, when grace became affectation, when purity became barrenness, and care was degraded to minuteness, we still see, through all this senility, the vivacious energy of principle. Even when the Greek artists became the obedient slaves of their too powerful neighbors of Rome, they still preserved for a long time, in their freshness, the principles which ruled their arts; but gradually the lessening remains of this vitality faded away, until, under the Emperors, the Greeks were reduced to the rôle of mere professional decorators.

In the next discourse I propose to explain the causes of this decline.

THIRD DISCOURSE.

COMPARISON BETWEEN THE ARCHITECTURE OF THE GREEKS AND ROMANS.

IT has been already intimated that the peculiar characteristic of the Roman people was an aptitude to organize and govern. Up to their time, the conquerors in history had been anything but civilizers; to conquer a nation had been to rob and enslave it, to degrade rather than to elevate; and, indeed, the Romans themselves were sometimes but greedy masters, more desirous of enriching themselves from their conquests than of enlightening the people they had subdued. This is not the place to recount the history of the long and bloody struggles through which the Romans ultimately became the masters of Italy, — struggles rather social than political, since they aimed, on the one hand, to preserve the wealth and power of a handful of patricians, and, on the other, to elevate the people from a condition bordering on slavery and to conquer for them the rights of citizens. This subject has been well treated by one of the most distinguished of our contemporaneous writers, M. Mérimée, who, under the modest title of *Essais sur la Guerre Sociale*, has vividly related the terrible struggles of the last days of the republic, and has discovered to us (though this was not the aim of his work) the various sources whence the Romans obtained their arts.

The Romans of the early republic, unlike the Egyptians, the Oriental nations, and the Greeks, had no arts of their own. They were really a people insignificant in numbers, under the despotism of a few patricians, who were entirely occupied in aggrandizing themselves at the expense of their neighbors; a species of brigands, moved in the beginning but by one common sentiment, that of domi-

nation and rapine, and enjoying few or none of those blessings which are procured by culture and the love of art.

But Rome was surrounded by nations among which the arts had already reached an extraordinary development. Campania and Etruria were covered with religious, secular, and domestic structures, whose value as works of art are still attested by remains of great beauty. The Etruscans, from an indefinite and very remote epoch, possessed already the vault, which was unknown to the Greeks. It is doubtful whence they obtained this feature, and the hypotheses on this subject, while peculiarly interesting to the archæologist, have no relation to the task before us. Let it suffice here to say that the East used the vault long before it was known to the West. The recent discoveries at Nineveh have brought to light monuments with vaults of mud or clay moulded over forms or centres, and arches built with voussoirs of moulded bricks. Now, the Romans, with rare sagacity, appropriated all that they found useful among the nations with which they came in contact. Thus their soldiers obtained their equipment from many sources: their bucklers were Samnite, their swords, Spanish, etc. Cæsar, in Sallust, says: "Whenever our people saw among their allies or their enemies anything which they could make useful, they took care to appropriate it and apply it to their needs at home." * They were essentially practical and utilitarian.

The Romans thus obtained from the Etruscans the round arch, built of stones fitted together; from Campania, the general arrangement of their sacred edifices, the Greek orders, the plans and decoration of their domestic structures. In this manner they sought to unite two conflicting principles of construction, obtained from two different sources, — the principle of the Greek lintel and of the Etruscan arch. Their ideas of art were those of pirates, who, with barbarous and tasteless pride, adorn themselves with foreign and incongruous spoils.

That refined sensibility of the Greeks which led them to observe with incomparable delicacy all physical and moral phenomena, that faculty which, with them, took the place of science and enabled them to obtain results far beyond its reach, was unknown to the Romans, whose genius and arts were different from those of the Greeks in character and development. They were a political, legislative, ad-

* "Majores nostri . . . . quod ubique apud socios aut hostes idoneum videbatur, cum summo studio domi exsequebantur."

ministrative people. The aristocracy of Rome was very powerful, and in possession of admirable political traditions, constantly gaining new acquisitions from all quarters. The senate, the supreme power of Rome, was composed of the descendants of ancient families or men distinguished in the public service, who had in their hands all the administration of state; and this, at Rome, included war, the government of conquered provinces, legislation, justice. The public service was the chief object of ambition with every Roman citizen, and this tendency was so strong among them that even in the last days of the republic, the Latin soil was divided between two distinct classes, — public functionaries and slaves: the former, all landholders, absorbed in political intrigues and the management of their estates; the latter, reduced to the most abject state, delivered up to robbery and all the vices engendered by servitude, ignorance, and idleness. As for the free plebeians, they were the most barbarous, gross, mercenary, and corrupt populace that ever filled a great city; unscrupulous, superstitious, and venal, they were the tools of the demagogues, the victims of the wealth, the factions, and the cunning of the patricians. Among a people so constituted and so employed, the culture of the arts is impossible. The Greeks, on the other hand, were industrious, commercial, sensitive to physical and moral beauty, eager for discussion and controversy; they were proud of their humanity, and happy in the possession of their poets, their historians, their orators and artists. It is singular, in the history of nations, to meet with a people distinguished at once by mercantile aptitude, and by an exquisite feeling and sympathy for works of art; to see the vanity of wealth compatible with a nice discernment for the true principles of taste; to behold a nation, inconstant in ideas, inconceivably fickle in prejudices, worshipping a man one day and proscribing him the next, yet at the same time progressing with unheard-of rapidity; within the space of a few years traversing all systems of philosophy, all forms of government, laying the foundations of all sciences, making war on all its neighbors, yet, in the midst of this chaos of ideas, systems, and passions, developing art steadily and with calm intelligence, giving to it novelty, originality, and beauty, while preserving it pure from the aberrations and caprices of what we now call fashion. At the time of the battle of Salamis, 480 B. C., Athens had been destroyed, its territory ravaged, and the Athenians had nothing left but their ships; yet so great was the

activity of this commercial but artistic people, that, only twenty years afterwards, they had built the Parthenon; and Æschylus, who had fought at Salamis, had produced his tragedy of the "Persians," in which the great barbarian king, the enemy of Greece, was represented as heroic and noble. In this, doubtless, was implied flattery for those who could conquer him; yet, as the magnanimity which could commend alike the conqueror and the conquered would probably be a severe trial for a modern audience and would be hissed from the stage, it was the mark of a pure taste and a high art among the people of Athens that they could appreciate and applaud it.

Greek art, though it did not always develop with the same perfection, never quitted the path of progress; it was a consistent *unit*, while all the other expressions of the intelligence and versatile passions of this singular people were the victims of chance and change. The Romans, on the other hand, had but one idea, universal domination; and this idea was so firmly rooted in the mind of the Roman citizen, that, within scarcely two centuries, three quarters of Europe, all Western Asia and Northern Africa, became subject to his will, though even in the days of the republic there were already symptoms of decomposition which foreshadowed the fall of the whole pagan system. The mechanism employed to obtain this result was simple: the Roman citizen assumed the attitude of a sovereign; if he conquered a territory, he seized and farmed out its public domain, encouraged colonization there, and insured peaceful possession for the Romans and their allies in the subjugated country; thus arose on every side colonies which were essentially and peculiarly Roman. If the Romans gave the title of ally to a country, they assumed a protectorate over it, engaged to assist it against its most distant enemies, assimilated its interests, and absorbed it in their vast organization. By in turns dividing, flattering, protecting, and chastising barbarous nations, the prestige of Roman power was gradually established over the whole known world. There was a unity in the political economy of Rome which did not exist in that of Greece, because, as I have already said, the Greek cities were independent municipalities, while Rome was the centre of a vast hierarchy which could only be broken up by a social revolution or by a torrent of barbarians.

This brief recapitulation of the Roman polity is necessary to a comprehension of the character of Roman art, which was but a

means, an instrument, as we have already said, and not a joy for its own sake, as among the Greeks. The Roman disdained everything which did not perform a useful function in this great political system; he troubled himself little to know whether a certain form of art was in harmony with the true principles of that art; he cared not to discuss, like the Greek, whether his opinions were logically deduced; he did not delight in an outline, a play of light and shade: he demanded but one thing, that his work should be Roman, a symbol of his grandeur and power, and, more especially, that it should agree with his political system, and be a useful work, filling exactly a prescribed programme. He made roads, bridged rivers, introduced water into cities by means of immense aqueducts; built amphitheatres, which should be places of public reunion, not only for the municipal duties, but for the pleasure of the people. He concerned himself little whether an allied or vanquished people preserved their religion, provided they conformed to his laws; on the contrary, he incorporated the gods of the subject nations into his own polytheism, and thus attached his foreign vassals to his own fortunes by the strongest of human ties, — religion and fixed institutions. It was the same with the arts. The Roman found among the Greeks superior workmen; he imported them, hired them, and permitted them to decorate his monuments according to their own taste, but recognizing the artist only as a workman. As for the general forms and plans of his public buildings, their style and system of construction, he himself, the Roman, imposed them, from the Euxine to Britannia.

There is certainly something grand in this way of using the art of architecture, and it would seem, at first sight, to be in conformity with the spirit of modern governments; yet we may well doubt whether it is really in harmony with the character, manners, and traditions of the western nations of modern Europe. In France, for instance, endowed, as she is, with the artistic instinct, with imagination stronger than will, with a restless spirit ever ready to pursue any chimera which presents itself in the form of a sentiment or an idea, intellectual independence, free criticism, study, discussion, have always proved themselves necessary elements in the development of her art; it has ever flourished when the field was open to it, and we have beheld it enfeebled and degraded whenever forced from its natural growth by an arbitrary fashion.

The relations between art and politics should be understood. Art, like a religion, may either be cherished, tolerated, or neglected by a nation. In the first case, it develops proudly and freely, without embarrassment or constraint, making, and not receiving, its laws; in the second, it is subject to dictation and apt to be used as part of the political machine; in the third, it is mysterious and exclusive, it has its secrets and proceeds by initiation. Thus in Greece art, because it was loved, was made free; there it ruled without a question of authority; it was pure and simple because unrestrained. Among the Romans it was absorbed by the state, yielded to laws outside of itself, and became an instrument. But in the Middle Ages, among the western nations, especially in France, it was isolated; it had its own language; it developed in silence, receiving modifications and improvements without regard to the sympathy or appreciation of the multitude.

I dare to hope that these Discourses will plainly set forth the relations which have existed and still exist between the arts and the political economy of ancient and modern civilizations. I say, which still exist, because we are in the midst of a spectacle full of instruction to him who observes, with an unprejudiced mind, the general tone of the discussions which have arisen in regard to the arts. On the one side we behold the preachers of antique art, on the other the apostles of mediæval art. I refer here to artists who have strong convictions and defend principles, not to those who are ready to adopt any form of art, loving them all alike. I do not disdain, but distrust such liberal ideas, as wanting in that earnestness and sincerity without which art cannot live, and without which the public must become more and more indifferent. Now, in these two opposed camps there is something more than a mere array of artists, some under the banner of antiquity, and others under that of mediævalism; there are here present two great principles, which, since Greek antiquity, have not ceased and do not cease to wage bitter warfare: these principles are, on the one hand, submission of individual intelligence to consideration of policy; on the other, the independence of the human mind in all which relates to conscience and intellectual inspiration. This warfare is not at an end, and I do not see that anybody is to be inconvenienced or hurt by its duration; but it is well to know what this contention really implies. The adherents of the antique have for a long time confounded the Greeks and the

Romans, while, in reality, the arts of these two nations are developed from principles diametrically opposed to each other, those of the former being free and those of the latter enslaved; and there is reason to believe that the Greek artists would have found more sympathy among those of the Middle Ages than among the Romans, who have hitherto been regarded as their allies, but were in fact their oppressors.

We have seen that the art of the Romans was merely one of the expressions of a great political and administrative system, adapted to their times and needs, but entirely exceptional in the history of Europe. We have already reviewed the condition of public affairs, in their relations to art, before the Roman era. If we now glance at the condition of things after that era, we behold a spectacle of an entirely different character: nations constantly struggling against the institutions which rule them, the Gallo-Roman peoples of mediæval France reacting against the ecclesiastical and feudal systems imposed on them by their barbarian conquerors from Germany; royalty, when it is strong enough, we see availing itself of these opposing elements to enfeeble each by turn, encouraging rather than preventing their endless quarrels. In the midst of this chaos, no one, of course, cares about art or dreams of imposing formulæ on it. So it is, as it were, delivered up to itself, advances slowly, and expresses itself whenever and wherever the tumults of the time permit. It takes refuge in the cloister, but soon, stifled by the monkish routine, it shakes itself free with the same energy that we see displayed at that time in the establishment of municipal rights. The governments of those days, if we can give the name to such an incongruous mass of institutions, are not wise enough to understand that art is a powerful element of civilization; so they use it without trying to subject it. Art, indeed, seems to be the only refuge for liberty. Thus, in the midst of a society tossed hither and thither in the turbulence of factions, degraded by excesses, wasted in long and cruel wars, we see art advancing with steady and regular steps, diverted by no side issues, rejecting errors and improving by experience, in the same manner as, before the Roman era, art pursued its regular course in the midst of the disorders and turbulence of Greece. This was because art, in both cases, governed itself; because it developed under the study and criticism of artists and by an uninterrupted succession of deductions; because it was free from the restraints of

routine, *and submitted to no academic formulas;* because it drew its inspiration from every source, and had no other guide but reason and public sentiment. Greek society, like the inferior society of the Middle Ages, developed with commerce and the arts; and the arts, like commerce, developed only under the condition of absolute freedom.

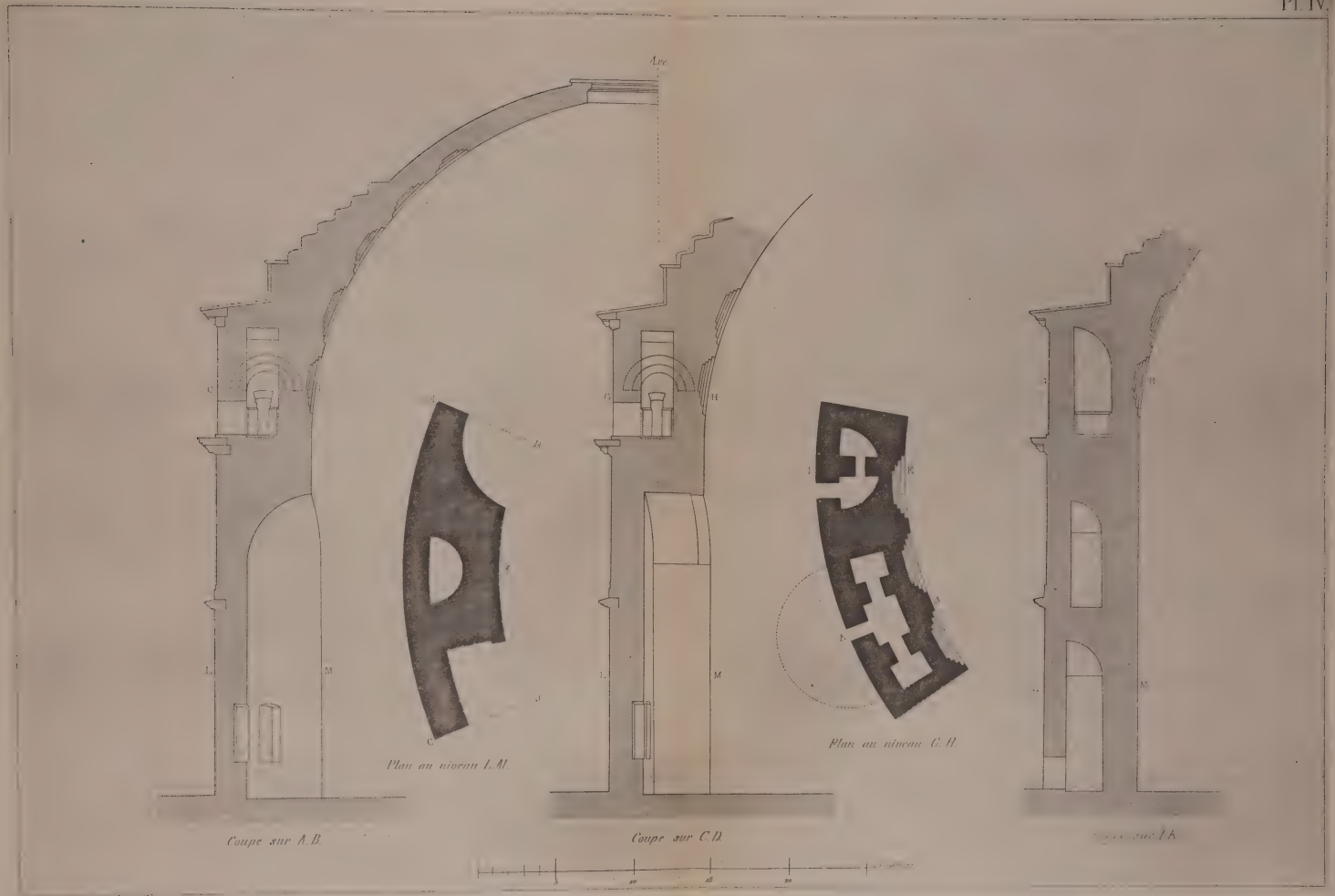
Now, the Romans were neither merchants nor artists; they maintained no foreign relations according to the modern fashion, but, as conquerors of the world, everything must be Romanized or exterminated, and, to obtain this end, the colonial and protectorate systems were established, as already explained. All colonizing nations, like the modern English, for instance, have employed the same general means to preserve their conquests and make them tributary to the grandeur and power of the mother country. In the case of the Romans these means were absolute religious liberty, civil and personal guaranties, tribunals appointed by the subject states with an appeal to the Roman magistrate, who intervened in affairs only to remedy local abuses and to show how much better the Roman government was than that which it replaced; a central power, protecting without embarrassing by complicated administrative machinery; the enrolment of the conquered or allied populations; and, what concerns our particular subject more closely, important works of public utility, clearing lands, fortifying cities, draining marshes, building roads, bridges, canals, aqueducts, harbors, civil structures, basilicas, town halls, theatres, baths, permanent camps, vast magazines, sewers, fountains, etc. The organization of the conquering army itself was applied in the construction of these works, aided by numerous requisitions for laborers from among the vanquished people; and soon the aspect of the cities was changed, their plans were completed or rectified, they were surrounded with walls, and, within and without, public establishments were built according to a uniform fashion; thus in a few years or even months the Gallic or German city became Roman, and conqueror and conquered alike found themselves surrounded by Roman institutions and Roman monuments. Under the application of such a system we can readily understand how local traditions and national sentiments were lost in the midst of the manners and habits of Rome; how the civilization, the regular government, the wealth, the comfort established in the midst of semi-barbarous peoples, soon effaced from their minds the memory of their own ruder manners

and customs. The part which art had to play in this great political and administrative system is sufficiently evident; but this part was, and could only be, very secondary.

So great is the difference between Roman and Greek genius! The Greek settled down upon no prescribed form, he was engaged in ceaseless inquiry and search after improvement, he examined his subject in all its bearings, but he expressed himself under the limitations of a logical principle founded on his reason, his observation, and his desire of harmony. The same spirit, applied to the intellectual domain, caused the philosophers to produce the most conflicting systems; for them, the field of intelligence had no limit even in the absurd, because, as regards the immaterial side of nature, from deduction to deduction, following rigorously the rules of logic, we can arrive at last at the point of proving the possibility of that which common-sense declares and demonstrates to be impossible, — at the point of denying movement, for instance, or being. But, in the material world, logic, as it has to deal with visible, palpable matter, having its properties and its insuperable laws, can lead to no such aberrations. The Greek architect may have found various absurd causes for the phenomena of gravitation, but he could not misunderstand, and he knew he could not infringe the laws, which governed those phenomena. He may have erred about the causes, but not about the effects; for he was a careful and attentive observer, sagacious in the practical application of his observations. A Greek sculptor did not understand the principles of the circulation of the blood, nor the exact functions of the muscles and bones; but he observed the human body in its external, actual, and visible form with a sagacity which enabled him to give to his statue the outlines and true movements of nature; nay, enabled him to go beyond nature, to complete and rectify her, as it were, by virtue of this thorough observation. The Greek architect put a capital on his column, but he did not put his column on a base, or, if he did, it was close to the ground and of circular plan, like the foot of the column, lest it impede the passage of his portico; all his methods proceeded from the same observation of the phenomena of nature and from the same application of obvious laws.

But not to pause longer over details, let us proceed to the consideration of a fact which is of the greatest importance, and which merits all our attention. In our preceding discourse, we have seen

how the Greek constructor reasoned when he built a temple, through what a series of reasonable deductions he at length arrived at that general disposition of architectural forms, that mutual agreement between isolated points of support and the thing supported, which we call ORDER. This disposition found, and all its parts harmonized together, at first by necessity, and then by the strict observation of their relative effects, functions, and of the apparent and concealed nature of their materials, the Greek had attained such a positive idea of proportions, of a mutual relationship of architectural features, that no essential part of his work could be modified without offending at once that reason and that exquisite delicacy of feeling which had combined to produce the result. He was as certain of the accuracy of his reasoning as the mathematician is of the truth of his demonstration; and as an architect, he was certain of the perfection of his senses, of his artistic perceptions, because his fellow-workers comprehended and sympathized with them. In a word, he had confidence in his reason and in his inspiration, and he could not admit that reason and inspiration could solve a given problem in two ways, both equally simple and honest. If he doubted as a philosopher, he did not doubt as an artist, for as such he defined matter, dealing with it experimentally. If he did not know the composition of matter, he had observed the effects of its strength, of its weight, of the light on its surfaces, of its resistance to exterior forces. The result, then, which he had reached was absolute. From this positive character of excellence and beauty, in a given case, to the exact reproduction of that excellence and beauty when the conditions were similar, was but a natural and logical deduction; the Greek himself might have reasoned thus: "Since I have established an architectural composition, all of whose members are in their necessary places, and all so related to each other as to commend themselves at once to reason and the senses, this composition is an expression of order; it *is* ORDER. If I should suppress one of its members, or change the relations established between them, I should destroy my work. But as my work is perfect, I must preserve it in its integrity. I know it is perfect, because in producing it I was at first guided solely by my reason, which taught me how to lay my horizontal lintels on their perpendicular supports, what space I ought to leave between those supports, how I ought to unite my portico to the wall of the cella, how I ought to shelter the whole; and then



THE PANTHEON.

DETAILS OF CONSTRUCTION.

my senses indicated the forms and proportions proper to my building, and how to decorate those forms. My work is therefore absolutely good. It is a distinct *unity;* it has a right to exist independent of whatever dimensions may be given it, for dimensions do not modify proportions; whether, therefore, I have a portico to build thirty cubits or ten cubits high, the relations between the various parts of this portico, that is to say, between the columns, their spaces apart, and the entablature, remain the same. My order therefore is a distinct type, whose proportions I am at liberty to reproduce without regard to dimension."

If the soundness of a reason may be measured by the length of time in which it has been practically applied, this reasoning of the Greeks, it must be admitted, is excellent. In fact, the Greek order or orders once established, their relative proportions were essentially preserved independently of scale; and though used by the Romans with certain modifications, of which we shall have occasion to speak presently, they were never afterwards frankly abandoned, but by the architects of the Middle Ages. The Greek architecture had a module or unit of admeasurement in itself, — the diameter of the column, for instance; but mediæval architecture had its module outside of itself, that is, the height of a man. Roman architecture developed a transition between these two methods, a transition arising from the preference given by the Romans to utility, the satisfaction of their material desires over the abstract and instinctive art-forms of the Greeks.

Roman architecture, as it is the exact stamp and expression of a vast political system, must remain for us an inexhaustible and invaluable subject of study; it has a value peculiar to itself. But this study must be pursued with discernment; we must concern ourselves with the truth there is in this architecture, and not with the details which clothed this truth, regardless of honesty and propriety of expression. In Greek architecture the visible, exterior form was but the result of construction; it may be compared to a naked man, the surface of whose body is but the consequence of his needs, of the structure of his organs, of the mutual relations and positions of his bones, functions, and muscles. His beauty increases when all parts of his body are exactly fitted to their several purposes, — nothing more or less. But Roman architecture is the man clothed; the man is one thing, his clothing is another; this clothing may be good or

bad, rich or poor, well or badly cut, but it is not a part of his body; if well made and beautiful, it ought to be studied; but if it interferes with his movements, if there is neither grace nor reason in its forms, it should be disregarded. Thus Roman architecture has its true, real, useful system of construction, combined by a master-hand with the view of answering certain definite purposes; it has also its envelope, its decoration, which is independent of the structure, as clothing is independent of the man. The Romans, as practical people, attached but a secondary importance to this clothing, this decoration; they wanted it simply to cover and do honor to their monuments; they cared little whether it was reasonably applied or not, whether or not it indicated exactly the essential forms of the construction of the edifice, and illustrated those forms. The Roman was above, or rather did not sympathize with or comprehend, the reasoning of the Greek.

I am sometimes accused of attributing too much to reason and too little to sentiment in architecture; the positions I have assumed would therefore seem to require from me a further explanation on these points. What, then, is sentiment as regards art? Is it not an involuntary action of reason applied by education to instinct? A shepherd's dog is but a wolf, whose instinct is directed by his animal reason, developed by education; instead of eating the sheep, he watches them lest they are stolen or killed. Our instinct causes us to prefer various sounds, our sentiment discriminates between true and false intonations; and why? Because our reason has acted on our instinct. The same is true of architectural proportions. Reason acts upon the senses, independently of the will, to govern them and create what we call sentiment. Now, the Greeks were such a people of reasoners that a good many of their philosophers became most unreasonable simply by the earnestness of their desire to be reasonable; but this nation of reasoners was more richly endowed with the sentiment of art than any other; it was the first to establish the orders of architecture, that is to say, the first to convert an instinct, that of proportions, into a law. Other nations, before the Greeks, had been guided by the same instinct in their buildings, as is shown in their evident desire to establish certain relations and contrasts between the various parts; but none of them could, like the Greeks, elevate this instinct to the authority of a law so just that it has never been broken without detriment to the effect produced on the senses.

Every monument in the world which is worthy of notice, from the farthest east to the limits of the west, produces on the mind a double impression, — admiration and pleasure; but there remains a feeling of embarrassment, of perplexity, because it requires an effort of the mind to understand the monument, so that, were it not for the desire of comprehending it, the mind of the spectator would be simply startled. It is reserved for the Greek monument alone to produce a homogeneous impression, to require no mental effort to familiarize us with its structure and intention; it is as clear to the casual observer as to the architect versed in the knowledge of his art. It says at once and to all what it has to say; but, strange as it may appear, this very quality, so unique and so lovely, seems a fault to those who have become habituated by our modern practice to see in architecture a perpetual enigma. I have sometimes heard it asked, "In what consists the beauty of the Parthenon?" As well might it be asked, "In what consists the beauty of a well-made youth, stripped of his clothing?" We can but reply, "He is beautiful, because he *is;* because, without an effort of the intelligence, without calculation, we know that he can walk, that he is robust, that he understands, sees, thinks, that he is complete, that he is a unity." By means of their law of the orders, the Greeks, in architecture, arrived at the same result. This architecture is beautiful because, like the man, it needs neither explanation nor commentary, because it cannot be otherwise. I do not believe it possible to arrive at this perfection in any other way than by the application of reason to the satisfaction of the instincts.

Vitruvius, who, though not a great philosopher, was imbued with the Greek ideas about art, yet who saw only superficially, like a true Roman, began his third book on the temples with a chapter in which he undertook to establish an analogy between the proportions of the human body and those of the temples and of the orders which compose them. This chapter of Vitruvius, in fact, establishes nothing; it is impossible to draw from it any practical conclusion; but it raises a corner of the curtain which conceals the philosophy applied by the Greeks to architecture, if we seek in the structure of the human body, not a metrical scale, as he supposes, to fix certain relations between the members of an order, but a method. Let us not forget that the Greeks were accustomed to take the ideal man as their starting-point, and that no people ever more thoroughly understood

man, both mentally and physically. In order to establish laws of architectural proportion, as the Greeks did, such a starting-point is necessary, for, in the beginning, proportions are but arbitrary relations, an instinctive desire not to be defined. But the Greeks, with all their poetic instincts, were not content with vague ideas, it was necessary for them to apply a form or a principle to everything, even in the immaterial world. Their mythology is the most evident proof of this.

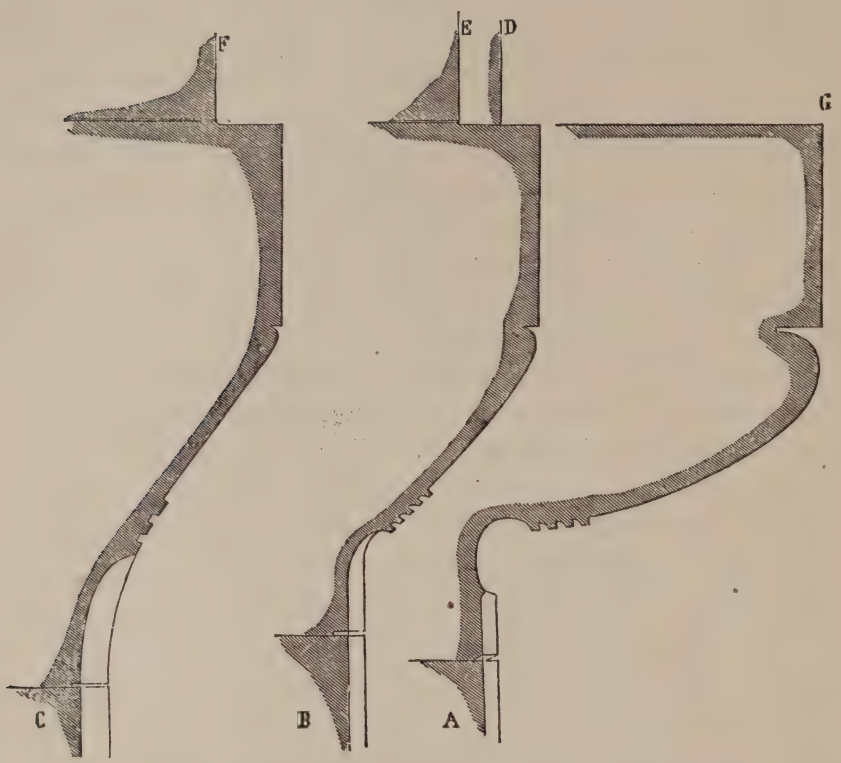
If there remained to us a treatise on architecture by Ictinus, he would perhaps have afforded us a clear explanation of this analogy between the human body and the architectural structure in general and the orders in particular. In the absence of such a treatise, let us endeavor to reason as he would have done. Man, of all organized beings, is the most complete, and this relative perfection is so apparent, so real, that he is at the head of the whole organic creation. He is the myth of structure. If, then, we would construct, we must take him as a model, not directly as regards the form of the thing to be constructed, but as regards the method applicable to such construction. Now, among organized beings, many have certain organs in greater perfection than the corresponding organs in man, many are more agile or more powerful, but none present so complete an aggregate of physical faculties adapted and proportioned to physical and intellectual needs. The Greek, therefore, considering this most perfect expression of harmony between requirements and exterior forms, was evidently justified, when the constructional necessities of his architecture were developed, in taking this expression and applying its principles to the problem before him, so that those necessities might be confessed, explained, and honored in his building in like manner. He wished his building to be beautiful as he himself was beautiful. But it was form, and not anatomy, he observed in man; he studied osteology, for instance, only through the visible play of muscles and their cutaneous envelope; he did not separate the different parts, created to make one, and distract himself from the object in view by an independent analysis of them, but he knew exactly their mutual relations, their functions, and their appearance; from the application of this study to his art resulted that sobriety, that harmonious relationship between the members of his architecture and their functions, which so charm us in the structure of the human body. Vitruvius was right to this extent. But it is necessary to be

cautious in adopting ideas evolved in the philosophical study of an art so positive as architecture. Permit me therefore to offer a practical illustration of the principles I have here endeavored to set forth.

In the structure of every organized being, and more particularly in that of man, whatever may be his movement or attitude, the bony system is always apparent in salient points united by convex or concave surfaces, according to the character of the fleshy parts between them. The more energetic the movement, the straighter do these curves become. The Greeks have shown their comprehension of this rule in their statuary, and they seem to have applied it to their architecture. Before their time, the Egyptians, in the profiles of their architecture, had certainly in view the imitation of vegetable forms. Their capitals, for example, evidently reproduced the curves of flowers or fruits. The Greeks, on the contrary, in their profiles, recalled rather the curved surfaces of muscles or of the fleshy integument between the extremities of the bones. When the artist would give an appearance of vigor to an architectural member, in tracing the profile of it he followed the energetic lines which characterize the muscles when in a state of violent tension. He did not trace these profiles by any mechanical means, as the compass; his hand was only guided by his exquisite feeling for the forms which he had observed and knew so well. The outline of the Doric capital, for example, in the most ancient Greek monuments, presents an emphatic curve (Fig. 1, profile A*). But the true artist, not content with the first expression of his idea, dwelt upon it, that he might perfect it and make it a more faithful exponent. The outline of the primitive Doric capital presently appeared to him to want energy, not to indicate its function of support with sufficient clearness; so he traced the profile B;† then he reduced the moulding to a mere inverted truncated cone, uniting the projection of the abacus with the upper circumference of the column with a straight line, as shown by the profile C.‡ Thus, by the exercise of his reason, the Greek architect insensibly passed from the capital A, whose *echinus* resembles a cushion, a soft body interposed between the shaft and the abacus, to the capital C, whose form and almost bald profile expresses an energetic support, bringing the weight of the abacus, and that which the abacus sustains, to bear directly on the shaft of the column.

* From the Acropolis of Selinus.
† From the Parthenon.
‡ From the temple of Ceres at Eleusis.

Fig. 12.



If we examine these profiles attentively, we shall see that the reason of the constructor and the sentiment of the artist proceed together in them. The architrave, bearing on the capital A, the most ancient of the three, presents its face at D, on a line with the shaft. Subsequently the constructor of the Parthenon was shocked to see the useless projection D G of the abacus, and remedied the difficulty by advancing the face of the architrave, bearing on his capital B, to the point E, thus making it overhang the shaft so as to require a more energetic curve in the echinus. Subsequently the architect advanced the architrave still farther, to the point F on the capital C, and accordingly exaggerated the expression of support in that capital.

It is evident that the Greeks, in their buildings of stone or marble which are known to us, did not imitate wood construction ; nor, in the details of these buildings, did they follow vegetable forms, as the Egyptians always did, and as the Romans and the architects of the Middle Ages attempted to do.

I have said that the Greeks were the first who established certain

laws of proportions which we call *orders;* we should not conclude from this that these orders were absolute in all their members and relations. They were not such as to interfere with the necessary liberty of the artist, and though they might establish certain fixed relations between the different parts of the Doric order at the same epoch, great freedom and infinite variety were allowed in their application; yet the Doric order remains always the Doric order, as a man is always a man, though one is robust and another delicate: this example of the order may be short and stout, and that may be light and slender. This variety does not destroy the relative harmony or the relative proportions in either case. The Greeks never, either in their statuary or their architecture, put the head and torso of a Hercules on the legs of a Bacchus, or a heavy and robust entablature on slender and widely spaced columns. The study of the mutual relations which ought to exist in an order was applied even to the smallest details; it embraced not only the columns, capitals, entablatures, intercolumniations, the solids and voids of the colonnade, but the mouldings, their size, profiles and projections, and (so far as we can judge) their color.

The Greeks nearly always confined themselves to two orders, the Doric and Ionic. If we compare these two orders, we shall readily discover that each possesses a proper harmony of its own, although both are derived from the same principle. The structure is the same, the manner alone differs. If the Doric order is grave and simple in its general composition, this expression extends to the least details, and the effect is obtained by the outlines, the shadows, the play of light and shade on broad surfaces, and by the character of the mouldings, as we have already seen. The characteristic of the Ionic order, as distinguished from the gravity and simplicity of the Doric, is elegance; a quality pervading not only the general proportions, but all the details, and expressed by more delicate and more frequent subsidiary features and ornamentation. The Doric seems made for use in large monuments, which from their position are destined to be seen from a distance; the Ionic appears appropriate for closer inspection, to occupy the eye by refinement of details. We might almost say that the Doric is male, and the Ionic female; yet both adhere to the general principles which the Greek architect deemed applicable to the structure of the orders. If, in the Ionic, the shafts are more slender than in the Doric, they are covered by more numer-

ous flutings, and their capitals, decorated with sculpture, are more important. The members of the entablature are more divided, and the shafts rest upon circular bases; for the artist instinctively felt that, in adorning his capital, and in treating his shaft with greater delicacy, the shaft should not rise abruptly from the stylobate, but should be introduced by a feature of transition between the horizontal base and the perpendicular support. But both orders, as we have remarked, are subject to the same general laws; the *antæ* or pilasters, for instance, never have the same capital as the columns in Greek architecture, for the artist had too much sense to place on a flat pilaster or on the end of a wall (*anta*) a feature which he had found appropriate to crown a column or shaft of circular section. So closely are the two orders assimilated in structure, that certain secondary features expressive of construction — the triglyphs, for instance — were not abandoned in the Ionic till a comparatively late period.

We have observed that the adoption of the orders never interfered with the independence of the Greek in designing. He never wearied in his search for absolute perfection. The play of light and shade upon his masses and details, the picturesqueness of his outlines against the sky, all his effects in short, as we have seen, were studied with fastidious care. He was endowed with perceptions far too delicate to permit him to submit to any blind, inflexible law. If he admitted formal symmetry, it was rather as a poise or balance than a geometrical rule. The remains of Greek monuments, the precious descriptions of Pausanias, make it evident that the Greeks never endeavored, as we do, to obtain a grand general effect by submitting all the edifices of a public place to the same order, without regard to the destination of each one. They had their laws, like nature; but, like her, they obeyed these laws with a result of infinite variety. A Greek architect, called upon to admire the symmetrical beauty of our great modern architectural conceptions, our vast façades, uniform without regard to differences of position and destination, in the parts of which they are composed, would be apt to say to us, in pity: —

"Since you think that beauty consists in great part in symmetry, why do you not try to have the sun rise and set at the same moment, so that your edifices may always be lighted on two sides at once? In nature everything proceeds by contrasts; we know good by its

opposition to evil, we know that light cannot exist without shade, that a thing is large or small only relatively, that no two beings of the same species are identically similar; and yet you expect to attain the beautiful and the good by changing the natural order of things, by substituting uniformity for variety. Here, for example, is a public place surrounded by buildings: this, you tell me, is a tribunal of justice, that the palace of a minister, another contains public offices, a fourth is a barrack, a fifth is designed for a public treasury, and a sixth for a great hall; but if you do not inscribe upon the doors of these several establishments their respective characters and destinations, how am I to distinguish them? This side of your square is exposed to the sun all day long, and that remains in shade; yet I perceive porticos of a similar character on both sides. The windows for the offices of your clerks are the same as those for your great hall. I see the same decoration sculptured on the friezes of all these buildings, they are crowned by the same emblems (*acroteria*); yet you, who do these things so unreasonably, and say that it is to satisfy rules of art, pretend that you are inspired by our customs! It is evident you have never visited Attica, the Peloponnesus, or our colonies. Because you have used a form of our orders at hazard, and without apparent motive, and have in a manner adopted our capitals and entablatures, this does not prove that you are inspired by our art; for architecture does not consist in repeating on a façade fragments which you have stolen or badly copied from us. I know not what kind of a people you are, but it is evident that you are neither Greeks nor Romans. Our architects had laws also, but they had them to interpret, not to submit to, like a flock of sheep crowding along the same path under the guidance of the shepherd's crook. Their first thought, when the construction of a monument was confided to them, was exactly to fulfil all the conditions of the programme before them; they desired so to treat this design, both as regards general disposition and subordinate sculpture, that all should know from these the destination of the structure; they so selected or availed themselves of the peculiarities of its site, that in all its aspects it should be fitted for its destination; they would not have decorated a building for the accommodation of clerks like the palace of a chief magistrate or a ball-room. Loving their work, studying it under all its aspects, returning to it again and again, designing and redesigning, fastidiously correcting all its

details, they aimed to leave no part, however minute, unfinished or imperfect; they arose from their task with regret, fearing to have forgotten some detail, to have neglected some secret corner, to have left some point open to criticism. They would never conceal plaster or cheap wooden partitions behind magnificent façades. Do not say, then, that you are following in our footsteps; though you have stolen from us a few tattered remnants and decked yourselves with them, like savages who think to command respect by throwing over their shoulders a rag of royal purple, you do not understand our spirit or the language of our art. Indeed, those who preceded you in this very city a few centuries ago, and whom you stigmatize as barbarians resemble us much more closely than you yourselves. Though they spoke another language, and worked under other inspirations and with different motives, I can comprehend them and can see that they reasoned, that they felt, and knew how to express what they wished to say. I understand that you boast of having Greek artists in your schools. Is this sarcasm; and do you believe that you are rendering a wise homage to us, by taking our garments which were not made for you, and which you know not how to wear, while rejecting or misunderstanding our intelligence and our spirit?"

An ancient Greek, transported to-day to Paris or London, might utter language like this, and he would have cause for much more indignant criticism, which perhaps I could not prudently repeat.

Now that we comprehend how the Greek mind applied perfect art to their works, we perhaps can better appreciate the spirit of the Romans.

The Roman people had numerous armies, and a population of slaves at least double that of freemen or citizens: these were available for their works of public utility; these constituted their material power. From their conquests and their manner of administering these conquests, immense riches poured into the public treasury. With their material resources they built structures, and with their riches they paid for artists and precious materials. Hence the construction and the decoration of their monuments were, as we have said, two distinct operations. Their methods of construction and of decoration were the practical results of their social condition. Armies and innumerable troops of slaves were at their disposal in every part of Europe, and, without any special instruction, were

available for all the preparatory labors of building; they could cut stones, they could cart sand, they could make mortar and bricks. With these elements of labor at hand, the most convenient method of constructing great monuments was not certainly, save in some exceptional cases, to use materials of great dimensions, requiring skilful craftsmen to quarry and cut them, complicated engines to transport and lay them, — a slow and cautious process of building. But by the aid of the numerous, and for the most part unintelligent laborers at their command, the Romans provided enormous quantities of small material, moulded the bricks, slacked the lime on the spot, and carted the sand; then the architects designated the points of support, and the position and character of the walls to be reared; hundreds of workmen under military supervision and strict mechanical superintendence proceeded to mix the mortar and bring to the site, in their arms, rubble-stone, gravel, and bricks, and, while selected workmen laid up the rough faces of the walls, the masses behind were filled with compact concrete. When they had thus reared the walls to the desired height, the science of the architect again intervened to prepare and lay in place temporary centres or forms of wood from the abundant forests of Gaul or Germany, on which the masons and laborers moulded the arches and vaults of the structure with their brick, their rubble, and their mortar or concrete. Thus a skilful superintendent, a few carpenters and masons, and hundreds of strong and disciplined arms, could elevate the greatest monument in a few months. Nothing in modern times recalls the Roman method, but our great railway works of engineering. Their best constructions of art were reared by employing, in the same manner, a few intelligent workmen, and innumerable laborers, working blindly and mechanically under regular and severe surveillance, and according to certain formulas established by experience. In support of what I have said, and in proof of the indifference of the Romans for the decoration of their edifices, innumerable monuments of public utility might here be mentioned, which they suffered to remain in the rough state, without feeling any desire through the lapse of centuries to cover them with their envelope of art. The Porta Majora, an arch of triumph, a purely monumental conception erected by Tiberius Claudius, son of Drusus, to celebrate the introduction of water by the Claudian Aqueduct into Rome, never had its rough walls plastered, even with roughcast of gravel and mortar, though it was subsequently restored,

together with the aqueduct, by Vespasian and his son Titus. The founders as well as the restorers of this magnificent work took care to record their munificence by inscriptions, but did not think it necessary to give it the finishing touch. But a Greek, before causing his name to be engraved on a structure erected at his expense, would make sure that it was completed, and worthy to transmit to posterity the memory of his good taste and love of art. Even in the Coliseum there are portions where the roughcast is but begun. But negligences of this kind are more frequent in the provinces than in the capital. At Provence, the amphitheatre of Nismes is but incompletely roughcast, and the great aqueduct, called the Pont du Gard, has only received this finish in a few places. We can find similar evidence of indifference for the forms of art in all the provinces of the Empire. That which especially occupied the thoughts of the Romans, with regard to their architecture, was the plan, that is to say, the exact accommodation of the various services to which their buildings were to be devoted respectively, the relative dimensions of the apartments, and more especially were they distinguished from us, who pretend to draw inspiration from their works, by careful selection and arrangement of site, by judicious regard for the natural levels of the soil, and by economy. The Roman, it must be understood, was not parsimonious; but he was economical, that is to say, he strove to avoid waste, both of land and of material. He did not comprehend that artistic feeling which prompted the Greek and the mediæval builders to work for their own honor; but, according to his understanding, the sculptor he employed labored for the public good, and to celebrate the munificence of the Roman benefactor. He did not call the artist to his aid till the material purpose of the monument was attained, and then merely as *a dresser* of the work; and with reference to these finishing processes, his concern was not for delicacy or refinement of detail, but rather that his monument should be covered with precious marbles, rich in color; and, with the taste of a *parvenu*, he esteemed these marbles in proportion to their rarity and difficulty of working.

But with the Greeks every workman was an artist. Do not expect from them constructions in which man is but a machine. There was hardly a cubic yard of mortar or concrete in their buildings; the foundations were hastily laid up of dry stones, and they avoided this mere mechanical and concealed work as much as they

could by elevating their monuments on the living rock in which their territory abounded; but, on the other hand, they endeavored that no part of the structure above the level of the ground should be concealed; for the stone-cutter had his sentiment of vanity as well as the sculptor. He wished that *his* stone should have at least one face apparent. If the Greek did not employ vaults, it was not because he did not know them (a fact not easily proved), but because this method of construction required strong abutments, inert masses of pier and wall, and they shrank from the vast amount of merely mechanical labor, whose results must necessarily be concealed in such construction. Whatever were the advantages of vaulted construction, these advantages, in the eyes of the Greeks, did not compensate for the humiliation implied in the laborious heaping up of masses. Besides, if the nature of their country was such as to do away with the necessity of building foundations, it was prodigal of the most admirable materials; or, if they did not have marbles, as in Magna Græcia and Sicily, they covered the stone they employed with a fine stucco, applied with inimitable care and skill; and this stucco they colored in such a manner as to adorn and confess the construction, for, like true artists, they respected the labor of their hands, and would conceal from no eyes the details of their work.

When the Roman had completed his construction in the manner indicated, and the material and practical part of the programme had been thus fulfilled, if he had capable artists at his disposal, or if he could procure marbles, without regard to cost and even from the most distant countries, he would cover his rough walls with a thin veneering of the precious material, he would decorate it with mouldings, he would closely embrace them with the columns and entablatures which he tried to copy from the Greeks, and like them, but without their honesty in confessing construction, would cover his vaulted ceilings with stucco moulded, painted, and gilded. But, comparatively, the Greek monuments were small and the Roman monuments were vast and lofty. The Roman therefore found himself, he thought, obliged to superimpose the Greek orders. But his misunderstanding of the Greek spirit appeared more distinctly in the fact that, while the Greek orders were simply the artistic treatment of a construction of posts and lintels, the Roman admitted little else than the arch and vault in his public edifices; and yet, against the faces of the piers which supported his arches, he would apply col-

umns bearing entablatures over the arches themselves; that is, he would use the Greek construction simply as a frame to decorate his own. This singular blunder is the best illustration of how entirely the Roman separated construction from decoration, regarding the latter only as a luxury, a garment of whose proper usage or origin he cared very little.

It is in this complete misapplication of the Greek orders that the example of the Romans should be avoided; and yet, so entirely are the most reasonable, obvious, and sensible principles, principles true and immutable for all times and places, forgotten by those who should proclaim and practise them as axioms, that this self-evident error has been repeated and perpetuated ever since the revival of Roman architecture in the fifteenth century. To place a lintel above an arch is certainly most unreasonable; for the arch, being itself a means of discharging superincumbent weight, should be above the lintel which can hardly sustain its own. It is a rule for all time that the fragile thing should be protected by the strong thing, and not the reverse. Everybody has observed how peasants, when on their way to market, carry their shoes in their hands and do not put them on till they enter the city. What would be said of him who should infer from this that shoes were made to be carried in the hand when walking, and to be put on when sitting down? Which of you would adopt this usage and stigmatize as barbarians those who walk with their feet shod? The foot may be admirable in form and the shoe a masterpiece, yet it is no less true that shoes were made to be worn on the feet, and not to be carried in the hand. It is not sufficient to admire and cherish the works of antiquity, but to see that they are properly used. Now, a Greek of the time of Pericles would be shocked to see a lintel on columns engaged or built into the wall and surmounting an arch. He would not fail to ask whether the lintel so used had not proved too weak for its work, and whether, as an afterthought, the arch had not been placed beneath it and between the columns to support and strengthen it. But we believe the Greek would shrug his shoulders when told that this construction was originally conceived so and is an architectural combination. It may be said, as we are not Greeks, we have no right to testify our disapprobation when such blunders are committed before our eyes; but we have a right to use our minds, and, in inheriting Roman architecture, it is our privilege and duty to reject that part which is bad and to retain

that which is good; to distinguish its construction, which is excellent, from its borrowed envelope; to recognize the qualities which are peculiar to Roman and to Greek art, and not to confound them in the same indiscriminate and vulgar admiration; to separate them as being each the expression of different and even hostile principles; to see, in short, in the first, at once the largest and most delicate expression of the finest instincts of humanity, in the second, a blind submission to the material wants and the administrative organization of a powerful political state.

The original Greek architecture presents itself to us in but a few scattered religious monuments almost totally ruined; its rare and precious remains often elude the search of the critic; in our admiration for these shattered remnants of a marvellous art, we must eagerly seek for those fruitful and too long forgotten principles of truth which lie in them. But Roman architecture, on the other hand, is omnipresent in the antique world, and appears in structures of every kind from the public road and the aqueduct to the triumphal arch and the votive column. The history of the Roman people from the end of the republic is well known to us, certainly better known than our own; we are familiar with their laws and customs; it is not therefore a difficult task to trace, through this great history, the progress of their arts; for these, as well as their religion, were but the instruments of an invariable policy. "It was neither fear nor piety which established religion among the Romans," said Montesquieu,* "but the necessity, common among all peoples, of having a religion." And further on he says, "I find this difference between Roman legislators and those of other nations, — the former made religion for the state, the latter made the state for religion." The same passage may be applied to the arts, which the Romans used, because they were a mark of civilization; art with them was an affair of fashion and expediency, not a conviction as among the Egyptians and the Greeks. And here it is worthy of remark, that when the Romans built a temple, that is to say, a sanctuary for divinity, they borrowed the order and general plan from the Greeks. They had no temples of their own, like the Egyptians or Greeks. The *official* religion of Rome was a Greek importation. In mythology, the two nations had the same ideas, the deification of natural forces, pantheism; but the forms of their myths differed

* "Dissertation sur la Politique des Romains dans la Religion."

essentially. Thus, the god *Sterquilinius* (of the dunghill), the productive force among the Romans, corresponded to the god *Eros* (Cupid) among the Greeks. But with regard to civil structures the Roman legislator intervened; he commanded, he knew exactly what was wanted; if he had recourse to the stranger, it was but to borrow from him a covering for his monuments, and even this covering he adapted and modified according to his fashion. He would not suffer his artists to embarrass him with their principles. He did not untie, he cut, the Gordian knot. He treated art as Claudius Pulcher, when about to begin a naval battle, treated the superstitious ideas of his soldiers: the sacred birds, when consulted, would not eat; this was a bad augury. "Since they will not eat," said he, "let them drink"; and so he caused them to be thrown into the sea. If to the artist of strong convictions art is a religion, a living, ardent belief, to others it is but a troublesome prejudice. A corps of architects, sculptors, and painters, governed by their own convictions, must be a continual embarrassment in a state without convictions in regard to art. Politicians, legislators, administrators, as the Romans essentially were, they could not endure such obstacles in the way of the development of their institutions. Their artists were slaves or freedmen, or, at most, citizens kept in a state of systematic obscurity. They would make a prefect of a flute-player much sooner than of an architect or sculptor. It was indifferent to the Romans what order or cornice or moulding the architect chose to apply to his building; but the moment he undertook to reason, to establish certain principles by virtue of which he came in contact with the will of the magistrate, the moment, for example, he refused to give three stories to a building whose proportions he believed better adapted to two, whatever authority he might invoke, whatever good reasons he might urge, the magistrate would at once direct him to obey, and not to amuse himself by discussing the principles of his art with him, a Roman, who admitted no other reasons or authorities than those of state. The ideas of the Romans concerning art may be illustrated by the well-known story of Lucius Mummius, the conqueror of the Achæans, who, while engaged in transporting from Greece to Rome the rich spoils of his conquest, stipulated that whoever should be negligent or culpable enough to injure in transportation a certain picture by Zeuxis, must supply its place with another.

We have no exact information regarding the manner in which the Roman magistrates treated artists, or how much independence was allowed them; but we have means of direct inference: we are familiar with the opinions manifested by these magistrates concerning certain religious sects, which, in professing inflexible doctrines in the midst of Roman society, were precisely in the situation of artists with strong convictions. No government was more tolerant than that of Rome; it permitted all religions, provided they were themselves tolerant; it proscribed indiscriminately only the Egyptian, the Jewish, and the Christian religions, because these were regarded as intolerant, as forming exclusive priestly sects, independent of civil authority, distinguishing between the spiritual and temporal, and therefore dangerous to the state. The Romans persecuted the worship of Bacchus, for example, not as a religious rite or belief, but as an offence against civil order; as in modern times the state allows liberty of worship to all, but permits no one to exercise this liberty to the prejudice of law and the public peace. At Rome the priest and the augur were magistrates. "In our city," said Cicero, "the kings and the magistrates, who succeeded the kings, have always had a double function, and have governed the state under the auspices of religion." * Now, if the Roman government professed such doctrines of tolerance and intolerance with respect to religions, there is strong reason to believe that it had similar doctrines concerning art, which, in Roman eyes, was of much less consequence.

This is no place to discuss whether the Romans were right or wrong in this matter, whether art was developed, or gradually fell into indifference and contempt under the oppression of the magistrate; we seek rather to show how the profound distinctions between Greek and Roman art arose from natural causes. Our task is not to review the political history of nations; but to indicate up to what point the fine arts, and architecture in particular, reflect the manners and institutions of the people among whom they have been developed.

Now, as regards religion, the Greeks were less tolerant than the Romans; witness the death of Socrates, the persecution of Alcibiades for having outraged the rites of Mercury at Athens, and especially the Peloponnesians, who, because of a religious festival they had to

* "De Divinatione," Lib. I. ch. xl. See "Dissertation sur la Politique des Romains dans la Religion"; Montesquieu.

celebrate, did not join the army of the Greeks till the day after the battle of Marathon. Their civil institutions, as we have remarked, very far from having the force or sagacity of those of the Romans, were turbulent and insecure, yet marvellously adapted to the growth of art.

It would be sad indeed if we were compelled to deduce a strictly logical conclusion from these facts, implying, as they do, that the more wisely, firmly, and consistently a people is governed, the less chance there is of art living a natural life and leaving perfect works. We hardly think this argument was ever used in the presence of Louis XIV., who, when he undertook to cover France with Roman monuments, simply expressed the natural sentiments of an absolute monarch, the chief of a national unity; for Roman architecture was the only system which could be adapted to his political system, and it would not have been well for any one to maintain before him that if society would have arts, artists must be allowed a certain liberty. We must admit that in all that concerns humanity, its sentiments and relations, its convictions and tastes, conclusions deduced from an absolute logic are rarely just. Some allowance must be made for the infinite variations of the instinct of man, the contradictions of which he is composed, his traditions, prejudices, and temperament. Yet, notwithstanding these, notwithstanding revolutions and conflicting religions, there are certain great natural laws which must remain immutable through all time and among all nations. Thus, in the development of the arts, the two opposing principles which, as we have pointed out, had their origin respectively in Greece and in Rome, must always remain true; and we shall presently see how they influenced the architecture of subsequent ages. Is it not therefore puerile, in the face of these great facts, and with the example of history before us, to occupy our time in disputing the pre-eminence of this or that school, excluding all styles or forms of art but our own, when our real concern is not with styles or schools, but with the everlasting principles of truth, and how to apply them to our own practice?

It cannot be too often repeated that that art only is true and good which is in harmony with the manners, institutions, and genius of the nation wherein it exists; and as nations differ from each other in these respects, the forms of their art must differ in a corresponding degree. If, in the course of time, it seems to go back to the

point from which it started, this is a phenomenon analogous to that exhibited when national characteristics repeat themselves. If, as in the present day, it has become unsettled and wandering, and looks this way and that for precedent and authority as a means of getting back to the true path of development, let us not cry out, "This, which I follow, is the only true path"; let us rather remain content with illustrating our own convictions and beliefs as well as we can in our works; let us aid, and, if need be, modify these convictions by diligent study and by serious and candid analysis; but do not push blindly to the right or the left, and maintain that this or that is the only way back to the right road. Study, and the love of art, not of *a form of art*, and conscientious search for true principles, are the only resources of intelligent minds when art is lost or gone astray.

We have spoken of the *genius* of nations in relation to art. Let us avoid vague words, which may lead to equivocations; let us understand ourselves at every step. What is this *genius* of nations? There are three elements which constitute national character: the element which we call national genius, the manners adopted by the nation, and the institutions which it imposes upon itself or which are imposed upon it. The two nations of antiquity which are best known to us, the Greeks and Romans, so different from each other, had each its peculiar genius in perfect harmony with its manners and institutions. But, since the establishment of Christianity, this harmony has not existed. The frightful disorders occasioned by the barbarian invasions in Europe have left deep traces, perceptible even in our own days, and destined to remain for a long time to come. Hence, in the Middle Ages and in modern times, the monstrous contradictions between the inherent genius of populations, their manners and customs, and their dominant institutions. Hence the frequent scenes of violence when the incongruous institutions imposed upon a nation stifle the inspirations of its natural genius. This genius is simply its characteristic way of expressing its intellectual and physical wants. The genius of the Greeks consisted in their tendency to demonstrate their ideas, and clothe them in reasonable form; that of the Romans, in submitting their ideas to public policy, that is, government. The former elevated their genius above their institutions; the latter placed their institutions above their genius. The truest expression of Roman genius is the exclamation

of the gladiators in the amphitheatre, pledged to fight till death, *Morituri te salutant.* Athens had a Socrates; Rome could not have one. Socrates was an Athenian at Athens; in his discussions he undermined the public creeds, he was listened to, he was dangerous, therefore, and had to suffer death. A Roman in Rome, he would have preached without an audience; he would not have been considered dangerous there. But the Gracchi, who plotted sedition against the state, were considered dangerous; and so more especially was Spurius Mœlius, who, for distributing corn gratis among the people in time of famine, was killed by Servilius Ahala, because he sought by these means a popularity dangerous to the public welfare. Those who were regarded as dangerous at Rome were not philosophers, but political reformers, opponents of civil law.

Now, so complete was the harmony between the genius, the manners and customs, and the arts of these two nations of antiquity, so perfectly did these arts reflect the respective characters of populations thoroughly homogeneous in their institutions, that nowhere else within our knowledge have they enjoyed such direct and simple conditions of development; the study of these arts therefore is the only proper elementary study for those who would comprehend architecture and how it is used as a language, a monumental record of the genius of nations. We dare to maintain that those among us who have confined their attention to the arts of the Middle Ages or of the Renaissance in the sixteenth century, without having first familiarized themselves with those of pagan antiquity, have obtained no profit. An exclusive application to mediæval art we cannot but regard as a progress towards barbarism. Yet, at the same time, we regard as narrow and incomplete the artistic education which goes no further than pagan antiquity, and as illogical that which is willing to neglect the intermediate phases in the history of art, and to leap from the age of the Cæsars to that of Francis I., Julius II., Leo X., and Henry II.

If it is right to consider the arts of the Greeks and Romans as strictly allied to their institutions, and if it is therefore reasonable and profitable, in this point of view, to make them an elementary study, it is a mistake to look for any such intimate alliance between mediæval arts and mediæval institutions; and a primary or exclusive study of them can therefore lead only to prejudice. In the Middle

Ages, as we have already said, there was an endless struggle between the genius of the nations and the institutions which governed them. The arts are one of the most vivid expressions of this struggle. Instead of being serene and simple like those of Greece, or a plain exponent of confident power like those of Rome, they were complex, a conflict of opposing forces, thrusts and counter-thrusts, the whole requiring careful scrutiny and the illumination of intelligent analysis and criticism. We are far from saying that this study is superfluous. Our present social state is complicated, and bristles with controversies; it is a union of ancient traditions, and of the intellectual and physical conditions of modern times; everything relating to art is indecisive and disputed; national genius is seeking for a definite expression in the midst of doubts, systems, and revolutions; and national institutions are tending, not to oppress, but, after so many experiences, to harmonize with that genius. In the midst of these things the study of mediæval art, so far from being superfluous, contributes to develop the spirit, to give it that pliability, freedom, and abundance of resource so necessary to place art in its proper position as an expression of national character.

Our task, then, is before us; if it is long, it is because the age in which we live inherits the past and cannot be separated from it. We must therefore examine successively the great unity of principles in Roman art proper, then the different elements which destroyed that unity; the influence of Christianity on architecture; the new order established in the midst of the earliest mediæval centuries, at first in the bosom of the cloisters, then, in the twelfth century, by the civil nation; the analogies and distinctions existing between this new order and the genius of the populations; its secret, persistent progress, independent of the arts, in the midst of political systems completely opposed to such progress; its decline in consequence of this permanent state of strife, the mediæval arts forming a sort of freemasonry, which, like every isolated organization, became narrow and sterile. We must follow the great Renaissance movement, its strange contradictions, its efforts to reach a result opposed to its natural tendencies; and, finally, we must treat of the means by which we, in modern times, can profit by the labor of so many generations before us, and apply to our own needs the principles which guided them.

In closing this Discourse, we would reply to all those who are

asking for *a style belonging to our time*: "When *our time* shall be something else besides a composition of pagan, Christian, and mediæval traditions; when we shall have effaced all traces of that long and bloody struggle of the Dark Ages between the genius of the races and the elements introduced by the barbarian conquests, between clergy and royalty contending for absolute dominion, between the people and the feudal system; when we shall have forgotten the Reformation with its enormous accumulation of learning and criticism; when we shall no longer be the descendants of our forefathers; when we shall have put an end to the scepticism of the age, with its constant undermining of traditions and systems; when we shall have found for our experiment a place on the soil of old Europe which is not covered by a ruin; when we shall have a Utopia of homogeneous institutions, of manners and tastes having nothing in common with the past, of sciences which we have not inherited; when, in fine, we shall have obliterated memory, — then, and not till then, can we have what has never yet been seen, a *new style*. For if it is difficult for man to learn, it is much more difficult for him to forget."

FOURTH DISCOURSE.

ON THE ARCHITECTURE OF THE ROMANS.

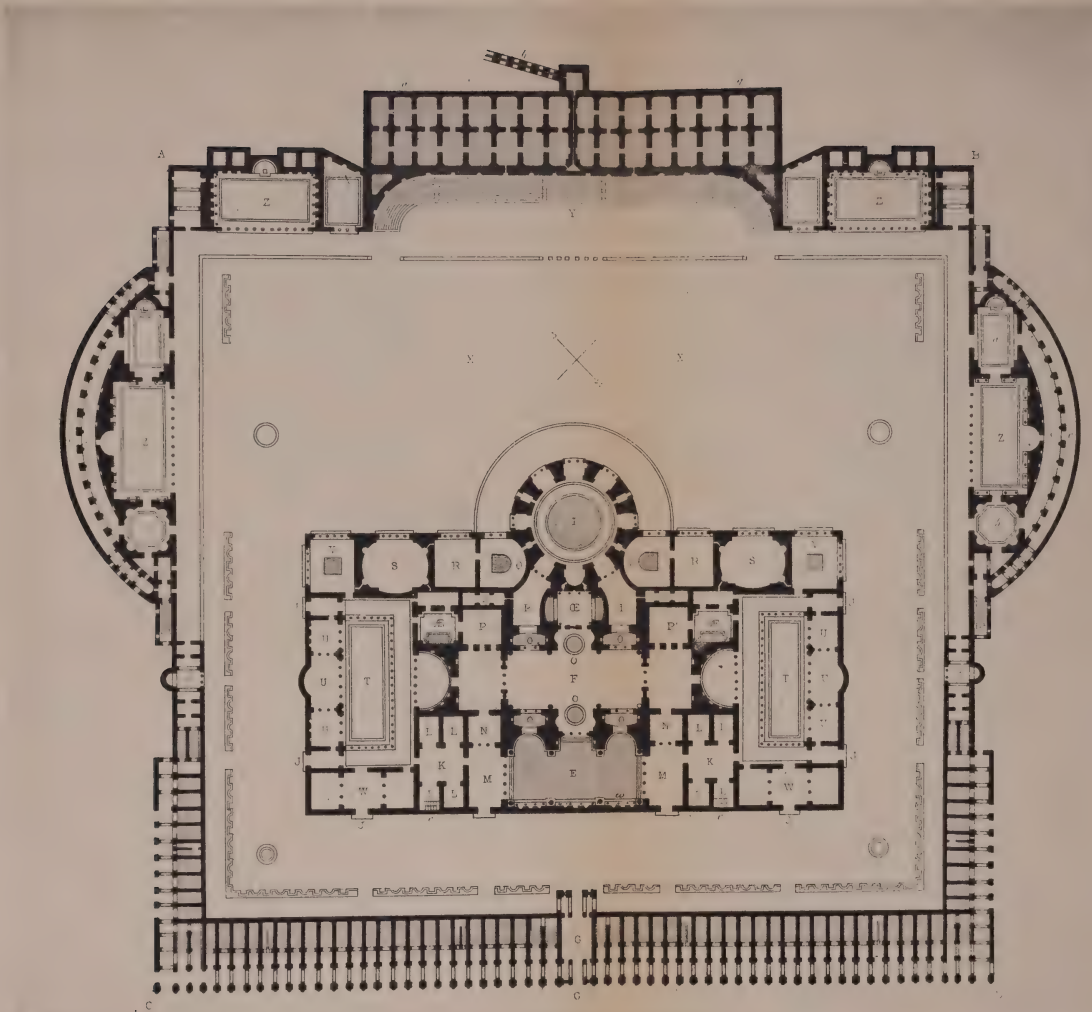
THE general principles of Roman architecture, briefly referred to in preceding Discourses, should be carefully analyzed; for, however simple a style of architecture may be, it is composed of elements too varied, it results from requirements too different and necessities too imperious, to be explained and understood without a discriminating study of the infinite details which compose its apparent forms.

I have said that among the Greeks the exterior form of architecture was but the result of an intelligent construction, of the careful observation of effects produced by light and shade, and of the sentiment of proportions. Though we now leave the immediate consideration of Greek architecture, we shall have occasion frequently to return to it in the course of these studies, since, for more than twenty centuries, it has been the source to which, by many different paths, all the arts of design have repaired for inspiration and refreshment. Let this architecture, known to us unfortunately by a very restricted number of buildings, play for us in modern times the part which belongs to it; let it be regarded as the most absolute and most perfect type of the principles to which I shall constantly find it necessary to call the attention of my readers.

We have seen that, among the Greeks, construction and architecture were one and the same thing; there was an intimate alliance between form and structure; but, with the Romans, construction, and the form with which it was clothed, were distinct and often independent of each other.

The main constructional difference between the two systems consists in the fact that, while the Greek was a composition of vertical and horizontal lines and surfaces, the Roman added to these two elementary principles, the arch and the vault, the curved line and the concave form; these new elements were employed from the time of the republic, they soon became the dominating principle, and finally quite supplanted the two others.

But, in the first place, we should consider what the Romans borrowed from the Greeks, and how their peculiar genius modified what was thus borrowed. The Romans had no religious architecture of their own; in constructing their temples they took the general plans and orders of the Greeks. The latter had three orders, each with its peculiar proportions and decorations, — the Doric, Ionic, and Corinthian. Of these, the richest, most elegant, and probably most recent was the Corinthian. But, down to the time of Pericles, the Greek architects seemed to give a marked preference to the Doric and Ionic; in their great temples they generally adopted the Doric. The Corinthian, of which we have but very few examples before the epoch of the Roman Empire, appears, among the Greeks, to have been applied only to monuments of small dimensions, as, for example, the little circular votive structure at Athens, known as the *Choragic Monument of Lysicrates*. But the Romans, towards the end of the republic, preferred to use this order in their great temples. The future masters of the world were like all parvenues: they considered the true expression of art to reside less in purity of form than in ostentation. The Roman had little feeling for such refinements of detail as we have discovered in the Greek Doric capital; he preferred, to the carefully studied sweetness and purity of the Greek lines, abundance of sculpture; he was rich, and he desired to appear so. The Corinthian order became soon the only one applied by the Romans to their religious edifices, as the most majestic, because the most elaborate. But as the small size of most of the Greek temples was hardly consistent with the genius of the Romans, who, from the earliest times of the empire, were prone to cover their cities with immense edifices, they exaggerated the dimensions of the Greek Corinthian order; and this, like the other orders, they soon imbued with their peculiar spirit as constructors. With regard to the columns, for instance, the Greek clearly understood that by their function they indicated monoliths; but, as his mechanical means were



THE BATHS OF ANTONINUS CARACALLA.

PLAN.

insufficient to quarry, transport, and raise large masses of stone, he supplied the deficiency by the extreme care and delicacy with which he superimposed the series of stone or marble drums by means of which he formed and built up his columns; and often, as we have already observed, when his material was too coarse to produce the effect of a monolith by this process, he obtained the desired result by the application of a fine colored stucco over the whole. But the Romans cut their columns out of single blocks of marble or granite. In increasing the dimensions of the Corinthian column, whose shaft was proportionally more slender than that of the Doric order, good construction constrained them to avoid building it up in courses according to the Greek manner. The Greek Doric column had no base, while the Ionic and Corinthian had bases composed of one or more circular bands (*tori*) resting directly on the pavement, but without the interposition of square plinths, as it never occurred to the Greeks to use a feature whose salient and sharp angles would interfere with the passage of their porticos. But the great monolithic columns of Rome suggested the use of a projecting socket to give them a firm footing; hence the base, of one or more tori with a square plinth, applied indiscriminately, by the Romans, to *all* their orders. The Roman considered the Greek Doric order too cold and simple for an atmosphere less transparent than Attica or Sicily; so he cut a moulding on the abacus, and substituted for the delicately cut horizontal lines in the neck of the Greek capital a ring of bold projection (*astragal*) encircling the shaft under the capital. The echinus of the Greek capital, that moulding on whose refinement of conception and execution we have already dwelt, whose outline can be defined by no geometrical process, was expressed by the Roman with a moulding struck with a quarter-circle. His architects had no time to waste in studying purity of contour, nor his stone-cutters, to devote to such unprofitable refinements; it was much more convenient and easy to trace a quarter of a circle with the compass than to seek and adapt an indescribable curve which was not even a conic section. We have seen that in the Greek Doric order a triglyph was always placed on the corner, irrespective of any fixed relation to the axis of the column beneath, and that the adjacent intercolumniations were diminished. But the Roman desired absolute symmetry, which was his law. Making his intercolumniations therefore mathematically equal, without regard to constructional refinements, the triglyphs

were invariably placed over the axes of the columns and intercolumniations, thus leaving a half-metope on the corner, that is to say, the expression of a void where that of the greatest solidity was required. This was unreasonable, but the laws of symmetry were observed, and these laws the Roman was apt to accept for artistic sentiment. The Greek accepted no laws save those of reason; but as reason delays, discusses, argues, cannot be classified or subdued to a system, it did not here commend itself to the Roman legislator. In proclaiming symmetry to be one of the first laws of art, he spared himself great embarrassments and uncertainties, for this is a law which everybody can understand and apply. But it is important to observe that the Roman, who thus applied this law to the forms of his art, that is, to the envelope of his monuments, would boldly and intelligently free himself from its restraint when it interfered with the satisfaction of a material need, as in the practical arrangements and details of his works of public utility. This is a salient point in the character of Roman architecture, and we propose to draw the particular attention of our readers to it.

In speaking thus of the Greek orders as imported and modified by the Romans, not to gratify a cultivated taste, but to serve the purposes of a wealthy ostentation, I do not pretend to pass these orders and their proportions, more or less absolute, in review, nor to repeat here what has been said about them a hundred times, and what can be found in every library. But there remains to us a single writer of the age of Augustus, treating of architecture, — Vitruvius. As he is the only one, he cannot fail to be the best; yet he is not necessarily infallible or complete. I am not familiar enough with the language of the Augustan age to know whether the writers of the Renaissance have meddled with the text of Vitruvius, or whether they have been able to complete it, where deficient, in the same spirit. As an architect, if not as a Latinist, I am tempted to believe that they have interfered with it in certain parts. Thus, the theories regarding the proportions of the orders, as laid down in his treatise, seem to me to be flatly contradicted by the testimony of contemporary architecture. Now, Vitruvius sometimes gives to the Greek orders fantastic and strange origins, which lead us to infer that, for him at least, the real reasons which guided the Greek architects were a sealed book. But there is an interesting passage in his chapter concerning the Greek Doric order, which certainly was not

arranged by the Latinists of the Renaissance, for they did not know the Greek orders, or knew them too incompletely to have done so. The interest of this passage consists in its indicating that a Roman architect of the time of Augustus imputed to certain dispositions adopted by the Greek, and of which we have already spoken, a reason which is entirely Roman, and not at all Greek; and that already the laws of symmetry had become imperious.

This passage runs as follows: — *

"Many ancient architects have denied that the Doric order is appropriate for temples, because it presents inconveniences and embarrassments as regards symmetry. Tarcheus and Pythæus have denied it, as well as Hermogenes; for the latter, having at his disposition a great quantity of marbles to build a temple to Bacchus in the Doric order, changed his project and made it Ionic. This is not because the aspect of this order is not beautiful, or because it is wanting in majesty, but because the arrangement of the triglyphs and of the intervals between them is perplexing in execution. For it is *necessary* that the triglyphs should be placed over the centres of the columns, and that the metopes between them should be as wide as they are high: now, the corner triglyph cannot be over the centre of the corner column, but must be outside of the centre; and the metopes adjacent to the corner triglyph cannot therefore be square, but oblong, and must have the width of half a triglyph added to their own. Those who would obtain on the whole length of the frieze metopes of equal width must necessarily diminish the last intercolumniation at the angle by the width of half a triglyph. But the arrangement is equally defective, whether we diminish the last intercolumniation or enlarge the metope. It was in consideration of this difficulty regarding symmetry that the ancients avoided the use of the Doric order in their sacred edifices."

Now, I think the true motive of the Greeks in preferring, in certain cases, to use the Ionic instead of the Doric order, was not that indicated by Vitruvius, but to gratify the incessant desire of that people for new combinations to meet new conditions, the desire to free themselves from the trammels of routine, to introduce progress in all things; the desire, in short, for something better, which soon tempted them on to affectation and finally to decline. He seems to me to deceive himself in imputing to the Greeks such bad taste

* "De Ratione Dorica," Lib. IV. cap. iii.

as to sacrifice a general disposition to an unimportant detail by decreasing the corner intercolumniations in order to obtain equal metopes. If we study their architecture, we shall find that they acted from a very different class of motives. But, however it may be, this passage betrays one phase of the spirit which actuated the Roman architect: he loved the universal application of formulas even to matters dependent only on reason and artistic feeling. But up to the time of Augustus, and long after, the Romans were accustomed to employ Greek architects in the decoration of their buildings, and these architects, when free, were apt to dispose of formulas in a very summary manner, whenever such formulas were opposed to reason and instinct. It may be added that even the purely Roman orders, in their characteristic distinctions of detail, followed rather the spirit than the letter of Vitruvius; and further, that their relative proportions admitted certain modifications according to the nature of the materials used in each case, according to the manner in which they were used, the dimensions of the buildings, the number of columns, etc. Still there was in these orders an imperious law, that of symmetry, the only æsthetic law with which the temperament of that legislative people could sympathize.

But the Roman exacted other concessions from Greek art. We have seen how delicate and essentially artistic the Greeks were, as exemplified in the fluting and capitals of their Doric order, and more especially in the exquisite refinement with which they varied the expression of their orders, individualizing each example, without destroying its distinctive characteristics as Doric or Ionic, or falling into the abuses of caprice. We have observed that their artists appealed to a sympathizing and appreciative public. But the Roman, on the contrary, insisted on positive and formal classifications in order that he might be understood. As he had to deal with vulgar minds, it was essential that he should be grand, colossal, that he should demand rather than appeal; he required no delicate art, no nervous grace of the Greek, for a public made up of such incongruous material, but richness, visible grandeur; and, under this brutal impulse, the Greek, become his workman, soon lost the delicate tact of his nation in obedience to the sublime vanity of his master. Yet for a long time in such hands, the clothing of the Roman monument was distinguished for admirable execution. If the Greek was obliged to load it with ornaments, these long preserved somewhat

of their native grace and sobriety. It was only by slow degrees that profusion quite overwhelmed all purity of execution.

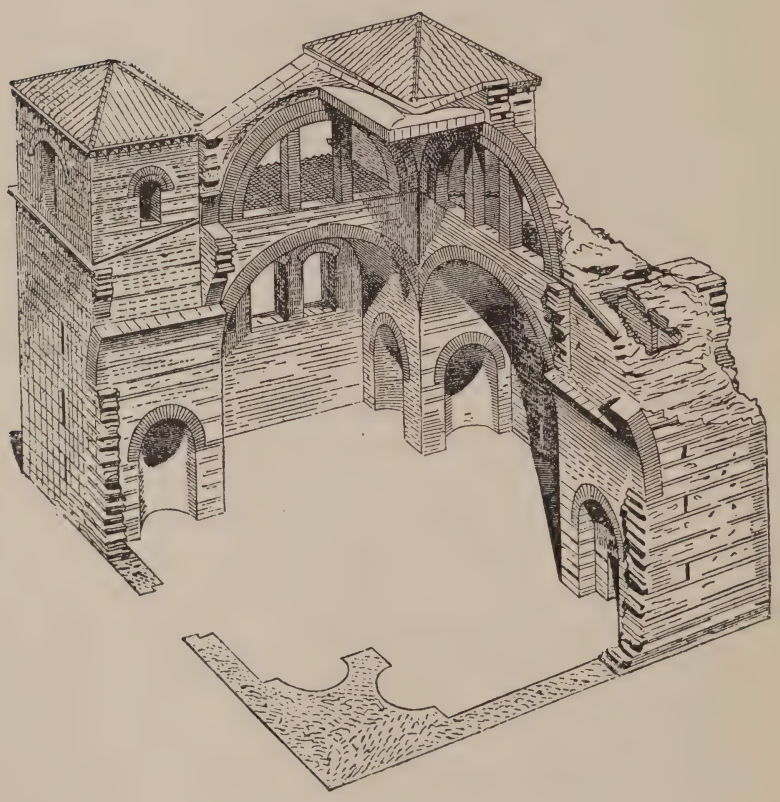
We shall presently take occasion to recur to this subject of architectural decoration, the frankness and beauty of its execution, at first among the Greeks, and then in the last days of the Roman republic and the first of the empire. Our immediate business is to consider that part of architecture which truly belongs to the Romans, — the structure of their monuments.

The Romans at a very early period adopted two distinct methods of construction, which they were accustomed to combine in their buildings: the construction with squared and fitted stones, and that with rubble or brick. The former was employed by them only as a thick facing composed of large blocks laid together without mortar, united by gudgeons and cramps of metal or even of wood, behind which they threw masses of small stones or gravel imbedded in an excellent mortar. The vaults were made of principal arches or ribs of cut stones or of bricks, with a filling in of concrete. This construction imposed on the Roman architects plans peculiarly their own, composed of massive piers as points of support for the springing of their vaults. In these constructions there were no walls, properly speaking, but isolated points of resistance, connected together by certain walls or screens, comparatively light, as they had no weight to support. The arrangements of plans, necessarily resulting from this principle, were admirably adapted to vast edifices, containing numerous apartments for various uses, as, for instance, halls surrounded by an agglomeration of smaller rooms or chambers of different form, size, and height, with passages, staircases, etc.

Let us suppose a programme of this character given to a Roman architect to execute: He first constructs four principal piers, disposed on the corners of a square (Fig. 13); these four piers he unites by arches at the height he deems appropriate for the smaller chambers; then, continuing to elevate his corner piers, he builds from them a vault covering the hall, and composed of two arches or round vaults intersecting each other at right angles; he proceeds to enclose the whole structure by erecting between the outer faces of the piers thin walls or screens, and, if necessary, he separates the four accessory apartments from the main hall under the vault, by constructing between the inner angles of the piers interior walls as partitions. Under the main intersecting vault, and over the round vaults of the

chambers, he opens windows to admit light into the principal room. Finally, he covers the inferior vaults with lean-to roofs, and the main vault with a low roof, composed of four gables with their intersecting ridges, thus obtaining, in the whole, a simple, easily understood, and unalterable construction.

Fig. 13.



However careless the Roman is of the value of workmanship, he possesses a mind too well disciplined, an economy too practical, in short, he is too good an administrator, to erect useless constructions. His calculations soon demonstrate to him that his piers would support his principal and inferior vaults quite as well with less bulk; so he hollows out under the latter round-arched niches covered by half-domes, thus increasing the available area of his subordinate apartments, in the manner indicated in Fig. 13. A construction of this character, which, properly speaking, is nothing more than a building

of rubble with facings of brick, hardly suggests, either on the exterior or in the interior, any system of constructional decoration. But as he is rich, magnificent, and ostentatious, he is not content with the rigorous fulfilment of his requirements; he must ornament his work; so he calls his artists, and has monolithic columns cut and enormous blocks to build porticos with, and other extraneous afterthoughts. The construction of the building is his own; the extraneous decoration he borrows from the Greek.

Now, the refinements of the Greek Doric order, its mouldings designed to be bathed, as it were, in transparent and unobstructed light, its gables (*pediments*) made low-browed that they might not seem to crush the columns beneath, all the delicacies of an art which delighted in purifying the least details, would be lost, would be almost ridiculous, if, instead of belonging to an isolated temple, whose outlines were detached against a clear sky, they were placed against these masses of Roman brick. It is not improbable that the Romans were conscious of this incongruity; the Greeks in their employ certainly were, for they adopted a richer and coarser order to fulfil these new conditions. They used the Ionic, or, in preference to this, the Corinthian, whose bolder and more numerous mouldings, elaboration of outline, striking effects, and lively contrasts preserved a certain elegance even with no better background than the compact mass of the structure. In the interior, the Roman covered his vaults with a fine stucco, divided into many compartments in order to increase the apparent size; this stucco was moulded with a flat ornamentation, as the material did not admit a bolder treatment, and the effect heightened by the application of color. The lower parts of his interior walls he lined with slabs of colored marble, separated by mouldings of slight projection in order to obtain that aspect of unity appropriate to rooms receiving a diffuse light. While he desired the outer covering of his construction to be distinguished by bold projections throwing broad shadows, as better suited to the grandeur of his conceptions, the interior linings he kept rich, but quiet and uniform. The Roman therefore had his peculiar taste, which, however faulty, deserves especial attention and study from us, whose laws, institutions, political economy, and language as closely resemble those of Rome, as our character, sentiments, and turn of mind are essentially and peculiarly Greek. We in France possess some of the good qualities, and all the faults, of the Athenians; and even their lan-

guage, though unfortunately too unfamiliar to us, has had its influence on our own. If our police cannot issue a writ of arrest without the exclusive use of Roman words, we cannot express new ideas, or discuss, or enter into the realm of speculation, philosophy, or science, without calling to our aid words derived from the Greek.

If the taste of the Greek belonged to his function as poet and artist, that of the Roman was in harmony with his as ruler and legislator; it was based on a profound knowledge of men and their distinguishing characteristics; he understood the division of labor, he knew how to discipline the human faculties, and to make them concur to an end which he himself, the conscious governor and head, had dictated, without ever deigning to interfere with the subordinate details. His taste consisted in his not for an instant abandoning the place he had made and so long retained for himself in the world as master, though surrounded by visible signs of decomposition, making the law of state supreme, but interfering with no religions and discussing no dogmas. But when the emperors became Christian, and undertook to sustain theses in their councils, the empire was lost, and the great Roman body was dislocated. Constantine, in whose reign began the last period of the decline of the Roman empire, in the edict, which, in 313, when not yet a Christian, he issued at Milan, conjointly with his brother-in-law Lucinius, said: "We give to all the world such religious liberty as each person may be inclined to enjoy, to the end that the blessing of Heaven may rest upon us and upon our subjects; we declare that we give not to the Christians alone, but to all, this liberty, in order to maintain the tranquillity of our reign." This was exactly the course pursued by the Romans in their architecture. They imposed formulas given by necessity, and an architectural system conformed to their social state; but they did not dispute that which was peculiarly the artist's, his professional liberty in the details intrusted to his care.

Exaggeration is the great stumbling-block in the way of true grandeur. This error the Romans scrupulously avoided. They were grand, but simply so, without effort or refinement. And thus, between the two extremes of daring and of moderation, of ambition and of common-sense, their taste found characteristic expression. Louis XIV., who had somewhat of Roman grandeur in him, endeavored to approach this model, but with what a different result! How miserable and false, for instance, appear to-day the

discussions on art, which arose on the very steps of the throne, when the question was whether the completion of the Louvre should be confided to the Italian Bernini or the French Perrault! The common-sense of the Romans about art, therefore, is a subject we may well meditate.

We shall see how this example was followed or misunderstood in the course of historic time, and how rapidly architecture was developed in the one case, and how promptly it declined in the other.

To return to the question of construction, we have seen that the Greek method, limited as it was to the post and lintel, or cross-beam, could furnish but little variety in the conception of plans. This method, moreover, whether constructions of carpentry or lintels and slabs of stone were used to cover interiors, could not be applied to rooms of any great size; for, if the spaces which could be covered by their horizontal wooden construction were necessarily limited, those roofed with stone were still more so. Edifices destined therefore by the Greeks to contain large assemblies were necessarily open to the sky. This arrangement their climate allowed. We cannot but be struck with the air of grandeur in these primitive architectural conceptions; but they did not suit the conditions of the Romans, whose dominion, under the emperors, extended from Italy to the colder regions of Germany, Gaul, and Britain. The system of construction among them, of which we have given an example (Fig. 13), permitted them readily and durably to enclose and cover vast spaces, and the simple means needed to effect this object — labor, rubble-stone, clay for brick, and lime for mortar — were everywhere available. In fact, quarried and cut stones were not necessary to the Roman method of building.

The absolute and practical requirements, arising from the social and political state of the Romans, imposed on their architects from the beginning especial attention to the composition of plans. In fact, if we cast our eyes on the edifices peculiarly Roman, such as baths, palaces, villas, and great establishments of public utility, we are at once impressed by their novelty and variety in this respect, especially as compared with those of Greece. These buildings present an agglomeration of rooms, as we have seen, each having appropriate dimensions; the piers, supporting the vaulted roof, have an importance relative to these dimensions, and the various apartments mutually support each other, the smaller bearing up the

greater, adroitly taking advantage of the voids left between the great points of support. In these vast establishments it is well to observe how economically the space is apportioned, how carefully all dispositions which could affect the solidity of the construction are avoided, and how appropriate to its destination are the form, aspect, and disposition of the plan of each room. If from the plan we proceed to examine the sections and elevations, we shall see how carefully the heights of these rooms are adjusted to their superficial area, and how the whole forms but a single edifice, like a hive made up of cells differing in size. It is in these respects that the Roman genius is original and triumphant, and it is from these, and not from what the Romans borrowed from the Greeks when they built temples to the gods, that we can obtain serious, profitable, and eminently copious instruction.

As we do not undertake to treat of archæology, but of architecture, it is not within our present scope to examine how the Romans modified more or less successfully the plans and dispositions of Greek temples when they thought it proper to adopt them. This study can have no practical aim, however interesting it may be. In observing Roman architecture, let us devote ourselves to that which is peculiarly Roman; we shall find the field vast enough. During the republic the Romans built a few small monuments, like the temple of Vesta at Tivoli, on a circular plan covered by hemispherical vaults in concrete. But from the beginning of the empire this kind of construction was developed in a manner until then unknown. Agrippa, in the 729th year of the city, and 24 years before the vulgar era, built the first of the magnificent baths at Rome, in the ninth district. It is doubtful whether at the same time he built that vast circular hall, known under the name of the Pantheon, which was near these baths, without being in direct communication with them, or whether he found it already built and annexed his baths to it. Dion affirms that Agrippa finished the Pantheon; but this finishing evidently refers to the portico elevated as an after-thought before the gate of the rotunda, as is stated in the inscription which can still be read on its frieze. But whether he built it or not, or whether he simply decorated the interior with a splendid order of marble, and the exterior with a portico of gray granite or white marble, little concerns us at present; but what belongs to our immediate subject is a fact concerning the Pantheon about which there can be no

question, and this is, that its construction and its decoration form two distinct parts. We are told by Pliny that this temple, as enriched by Agrippa, was dedicated to Jupiter the Avenger. The interior diameter of this hall is 142 feet 3 inches, and the circular wall which carries the vault is 17 feet 8 inches thick, or about one seventh of the interior diameter. From the pavement to the summit of the vault the distance is 145 feet 6 inches, nearly the same as the diameter. The circular wall is not plain, for, besides the entrance gate, it has four square recesses and three great semicircular niches. In the spaces between these are disposed near the pavement eight smaller semicircular niches, and, at the height of the springing of the vault, are sixteen apertures, which would pierce to the outer air were they not closed by a wall about four feet thick. No construction could be better as regards duration and solidity. It is entirely faced with large bricks, filled behind with rubble, according to the Roman method, with occasional binding courses of marble. The springing of the vault is about 73 feet 9 inches from the pavement, or about half the extreme height within. These dimensions are given here, because they show that the Romans had certain formulas applicable to the cubic contents of such structures, that they established certain exact relations between the heights and widths of such cubic contents, and that already they made the exterior appearance of their structures subordinate to the dispositions in the interiors. The hemispherical vault, which springs from the hollow tambour of the Pantheon, and covers the void beneath, is, as we have intimated, constructed of bricks and rubble, the former being disposed as ribs built in the thickness of the vault, which is lightened between them by five horizontal rows of caissons or deep panels sunk in the interior concavity. The circular upright wall is composed of discharging arches, distributing all the weight on sixteen piers, the voids between which are occupied by the square recesses and round niches to which we have already alluded. Thus, we see, the whole is a system of construction which imposed laws on the architecture before the architect dreamed of decorating his monument.

A, in Plate III., exhibits the plan of this rotunda of Agrippa without its interior casings and marble columns, which are indicated in plan B. It is easy to see, on comparing these, that the marble decoration is quite distinct from the structure, that it is composed of a mere veneering or of open-work made by columns, which have

nothing to do with the solidity of the edifice; the grandeur of the composition is quite independent of the decoration, which might be disposed otherwise without injuring the effect. The portico is an after-thought, a monument on the front of another monument. Its monostyle columns, and the entablature they support, have no affinity whatever with the concave surfaces, and their skilful system of mutual abutment, which are adopted in the rotunda. The interior structure of this monument is a beautiful page to fill; but give the task to ten architects, and you will have as many different systems of decoration; and I must admit I am not of those who admire without reserve the one adopted. Every one can recognize that there is no intimate and essential alliance here between the construction and decoration, as in every Greek edifice. In examining the construction of this immense rotunda (Plate IV.), we see with what care the architect avoided useless masses of material; how even the voids contribute to the solidity of the circular wall, by distributing the weights on certain chosen points of support, and by multiplying these resisting surfaces. At the height of the springing of the vault (plan on the level G H), the walls are hollowed out in a series of chambers, vaulted alternately with a full-centred arch and a quarter-dome, the buttresses, which cut across these at frequent intervals, firmly maintaining the grand hemispherical cope. A more massive construction would not only present less energy of resistance to the accumulated thrusts, but would be heavier, and would require a much more considerable quantity of materials.

What I have said of the architecture of the Greeks and of that of the Romans, the one never separating the structure from the visible appearance, from the form, the *art*, in a word, and the other requiring us to distinguish the work of the constructor from its decorative envelope, already points out the manner in which we should study them and apply them to our own needs. It does not follow, from the strong contrasts between these two principles, that we should exclusively admire the one and despise the other, and still less are we justified in according to either unqualified and vulgar praise or blame. Our duty is to analyze them both, and to take all that is true, logical, profoundly reasoned, delicately felt and expressed in the one, and, in the other, all that is grand, wise, applicable to our modern civilization, and systematized by the necessity of institutions and manners similar to our own.

I have endeavored briefly to draw your attention to that which is truly Roman in the rotunda of Agrippa; but the general effect produced by this immense room on the mind of the spectator cannot be expressed in a drawing or a technical description. In my own opinion, the present interior decoration, which has been several times modified, detracts from, rather than adds to, the grandeur of the effect produced by the purely Roman conception. Multiplicity of details, and the emphasis with which they are pressed upon the attention, diminish the impression of grandeur in a structure, especially when these details have no relation to its purpose. They tend to distract the mind from the principal object. In the Greek temples it is the structure, the general design, and not the details, which first occupy the mind, and the result is that, though generally small, these temples leave upon the mind an impression of grandeur which memory only serves to deepen. It is very difficult to combine opposite principles, and prevent them, when thus united, from mutually destroying each other. Apart from the value of its details and their perfect execution, I could wish that the Romans had preserved in the rotunda of the Baths of Agrippa its real appearance, and that this room had received a decoration which should emphasize instead of conceal its lovely and simple structure. I cannot but think that the lower order which cuts the great height of the constructional niches into two parts, and the attic, which masks their arches; this division into two zones of a homogeneous construction which rises from the pavement to the springing of the cupola diminishes rather than augments the sublimity of this beautiful composition. I can plainly see in those decorations the hand of the artist, the workman of true talent, the exotic Greek; but he is not in his place, his work embarrasses me, he does not comprehend the majestic spirit of the Roman, nor can I comprehend it through his envelope without a labor of analysis.

The incongruity between the Greek and Roman work in the Pantheon is further illustrated by the difference in the scale of each. The caissons, or large panels sunk deep in the under surface of the dome, are readily recognized as a true ornamental expression of its Roman structure; but these, by their superior importance and boldness, seem to crush the delicate cornices, and the divisions of marble below, which form an immense wainscoting, as it were, covering the supporting wall. The ornaments of metal, with which these caissons

were probably decorated, rather increased than diminished their importance, by calling attention to them and defining them more vigorously against the concavity of the hemisphere. Under this decoration, so masculine, so bold, and on so grand a scale, what becomes of these effeminate marble panels and flat pilasters, or of the capitals of the columns, whose height was hardly half the diameter of the great bronze rosettes with which these caissons were adorned?

I can conceive a room, all of whose parts are on a grand scale, with a wainscoting of marble or wood, which, by its height and fine details, should recall at the base of the structure the dimensions of a man; but I cannot understand the meaning of a wainscoting seventy-five feet high. Agrippa, in clothing his rotunda, as an after-thought probably, with decorations of marble forming a splendid order under his vault, gave evidence rather of his magnificence than his taste; and this is the common sin of the Roman: he is rich and magnificent, he would patronize the arts, for he has an idea of their power; but he is wanting in the sure and delicate taste of the Greeks when they were free to follow their own inspirations. You remember the sarcasm of the Greek sculptor addressed to his brother in the art: "Not being able to make thy Venus beautiful, thou hast made her rich." We are deeply impressed by a Roman ruin, because, in its melancholy nakedness, nothing is left of it but that which is essentially Roman in its structure. The hall in the Baths of Caracalla, whose vaults are ruined and whose piers are stripped, but which unveils to us the gigantic mechanism of the Roman work, would produce a less striking effect upon the mind of the beholder were it clothed in its array of useless columns, its marble veneering, and its incongruous decorations. That which produces the liveliest impression in the Pantheon is the immense vault which derives all its decoration from its own structure, and that single aperture, twenty-five feet in diameter, pierced at its summit, open to the zenith, and shedding upon the porphyry and granite pavement a great circle of light. So great is the elevation of this eye of the dome, that its immense opening has no sensible effect on the temperature of the interior. The most violent storms scarcely breathe upon the head of him who stands beneath it, and the rain falls vertically and slowly through the immense void in a cylinder of drops, and marks the pavement with a humid circle.

It was in such conceptions, expressing his peculiar genius, and

demanding no foreign artist to execute them, that the Roman was truly grand. But when he would build a temple like the Greeks, and accepted richness of detail and material for a sign of grandeur, he fell far below the serene beauty and purity of his model; and the fastidious Greek, who applied his art to the Roman monument, belittled it, and, bewildered in a strange atmosphere, forgot his own principles to become merely elaborate in details; a skilful slave, neither understood by nor understanding his master. We must admit, to the credit of the Roman, that he was no hypocrite; this vice (or perhaps I should say this *resource*), so common since the seventeenth century, was below him. The rich envelope with which he covered his monument held certain relations with its structure after all, yet we can plainly see that he attached to this envelope but little importance. In fact, he treated the whole question of art with a sort of good-nature (if I may use the word) which is not without its charm, and certainly has a trait of grandeur in it. But in this respect we must not deceive ourselves: when the Roman wished to be an artist in his own time and fashion, it was not easy to equal him. There is one remarkable example of this in a certain monument, known to all the world, traditionally but ignorantly admired, and generally, in an artistic point of view, falsely appreciated, — the Column of Trajan. I doubt if the Greeks ever conceived anything like this, for in it the peculiar genius of the Romans, their ideas of order and method, their sentiment as a ruling people, are pushed even to the sublime. There is something foreign to the Greek mind in thus writing the history of a conquest on a spiral of marble terminated by the statue of the conqueror. The Athenians were too envious to render such honor to any man, and they had none of those ideas of political order which were so powerfully expressed in the column of the Forum of Trajan. From the base to the summit it bears the imprint of Roman genius. Its square base is covered with low reliefs, representing trophies of the arms of conquered nations. Above the door, which gives entrance to the staircase, which winds up within the column to the abacus of its capital, is an inscription supported by two winged Victories. On the angles of the cornice of the base four eagles hold in their beaks garlands of laurel. The torus of the base is itself a great crown. Then, like a ribbon wound around the shaft, is a sort of continuous frieze, on which is sculptured in the most admirable manner the story of the first campaign

of Trajan. In about the middle of the height of the column a Victory, in low relief, traces the record of the actions of the conqueror on a tablet. Then begins the series of bas-reliefs, representing the second campaign, winding up till the capital brings these august archives to a close. The capital approaches the Greek Doric in character, and its echinus is cut with the egg-and-tongue ornament. The whole is terminated by a circular pedestal supporting the statue of Trajan. If the conception is beautiful, the construction is not less so. The shaft is composed of enormous blocks of white marble, within which is hollowed out the staircase with its newel. The capital is monolithic, and the pedestal is of eight pieces of marble.

The curious descriptions which Pausanias has left us regarding Greece, refer at every turn to the public places and acropoles of cities filled with statues, votive monuments, and bas-reliefs, sculptured by such an artist, and commanded by such a person, to commemorate or consecrate some fact. Thus the Greek cities often seemed actual museums in the open air, collections of works of art, surrounding and filling their principal monuments. But for the Roman such things were mere amusements. If he would have a work of art, he took care that it should be well ordered, that it should present a complete whole, and should have the importance, the clearness, and the methodical spirit of a law, a political or administrative edict. The artist disappeared; the monument was simply a *senatus-consultum*. But when ideas so broad and so elevated find fit expression in a monument like the Column of Trajan, I confess that for me Greek art, if not in form, at least in spirit, seems vanquished. Yet a decree, to accomplish its object most effectually, is better upon paper than in a bad monument imperfectly rendering a political thought.

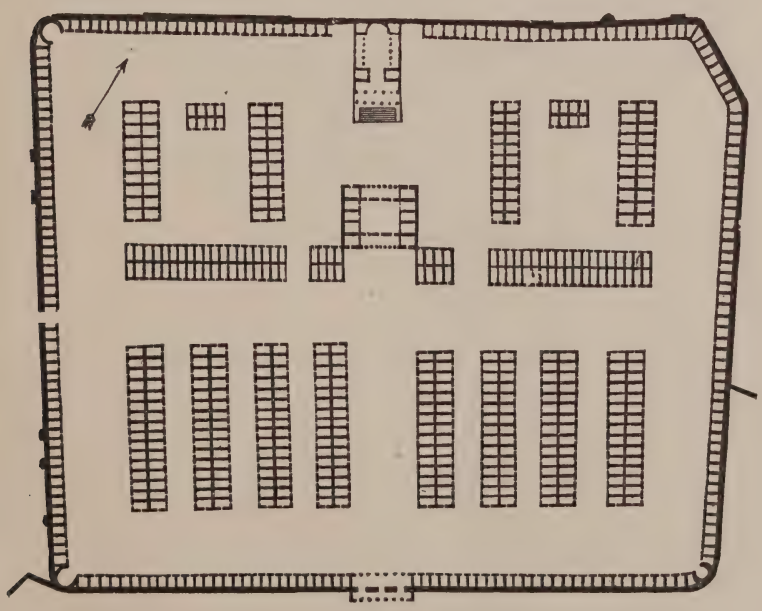
A Roman monument should never be studied alone for its own sake, but as one of a class; it is never an isolated example, but part of a vast system which requires to be understood before the form and objects of the structure can be justly criticised. In the political organization of the Romans, everything, even religion, tended to the same end. The same is true of their architecture. The buildings which best characterized the Roman spirit were baths, palaces, theatres, with their vast dependencies, and villas, that is, monumental cities, as it were, including in themselves all which belonged to the material and intellectual life of the Romans. Everywhere they were

essentially Roman citizens, and so far as practicable, even at home as private individuals, surrounded themselves with all the appointments of a Roman city. If the Roman was rich enough to build a villa according to his ideal, it included, not only the structures belonging to a private habitation, not only the dependencies of a vast establishment at once military and rural, but a basilica, baths, a theatre, a library, a museum and temples, like those destined for public use. It is then in this co-ordinate mass of monuments that we must seek to understand Roman architecture, and to discover the general methods and the details belonging to it.

As the essence of the Roman edifice was its plan, let us pursue our investigations in this especial branch by comparing the plans of two public structures whose objects were entirely distinct, barracks and baths.

On the northeast extremity of the sixth district of Rome, and in Adrian's villa at Tivoli, there can still be seen the remains of grand

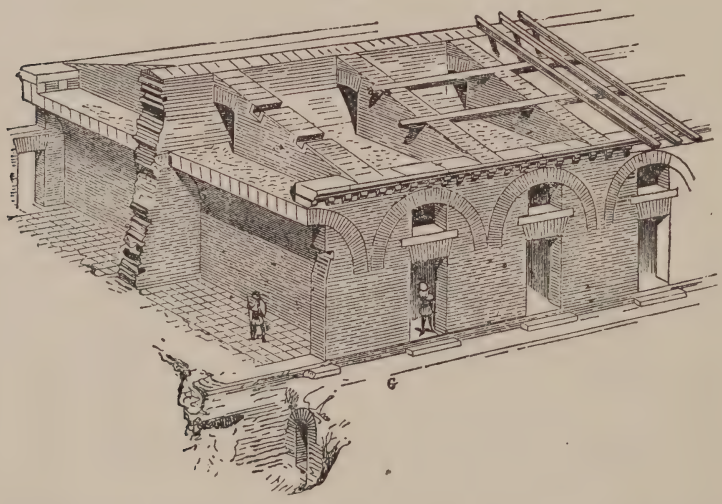
Fig. 14.



camps or permanent quarters for troops. Each of these establishments consists of a square enclosure entered by four gates; against the inner side of all the enclosing walls is disposed a series of chambers, each covered with a round arched vault. Within the enclosure

are a number of isolated structures, composed each of a long longitudinal wall, on either side of which similar series of chambers are arranged back to back. In the centre is the prætorium, a square building, destined for the dwelling of the commander-in-chief. In the middle of one of the sides of the enclosing wall is a temple, in which were preserved the military ensigns, which, among the Romans, were objects of divine worship. Each corps has its separate building, conveniently disposed; in short, no plan could be simpler or better suited for this special service. Fig. 14, which gives the configuration of the great prætorian camp of the sixth district of Rome, sufficiently illustrates this. Fig. 15 explains the method of construction. Great care was observed in these structures

Fig. 15.



with regard to hygiene. Where, as in the camp of the villa of Adrian at Tivoli, these ranges of cells were built against a face of rock or the side of a hill, the walls adjoining the escarpment were made double to avoid humidity. The Roman never spared space, nor yet did he occupy it uselessly; his military and civil organization led him to love symmetry, but he did not sacrifice necessity to it.

In examining their baths, we shall see how nobly, and with what luxury of construction and decoration, this people understood how to give harmony and unity to a programme embracing the most various uses and requirements. Every one knows what these uses were. In the earlier days of the republic, the baths of the Romans were small establishments, supplied with water from wells or from the

Tiber; but in the year 441 of Rome, Appius Claudius brought water from the lake of Prænestе to the city by means of aqueducts. His example was followed by subsequent magistrates, and soon the Romans constructed public and private baths, after the fashion of those of the Greeks.

Under the emperors, these edifices were numerous, and most of them embraced not only pools and rooms devoted to hot and cold baths, but gymnasiums, halls of assembly, libraries, gardens, promenades, everything in short which could contribute to the satisfaction of the mind or of the body. For a very low price of admission these baths, with all their luxuries and conveniences, were available to every citizen. Under these circumstances it is not difficult to understand that, however numerous were these institutions in the populous cities of antiquity, they were always full. Many Romans passed the greater part of the day within their walls. Under the Antonines, Rome possessed already three immense public baths, those of Agrippa, those of Titus, and those of Caracalla. Later, Dioclesian and Constantine built baths. A whole city might be enclosed within the walls of one of these structures; and yet, if we examine their plans, we shall find there no confusion, no useless or lost space, but everywhere order, the marks of a well-understood and thoroughly executed design, simple distributions adroitly managed to meet the practical necessities of the time and place.

Let us first analyze this programme: There must be a great entrance hall so arranged as to admit the freest ingress and egress; opening from it must be cells for those desiring to bathe for the sake of health without mingling with the crowd, and apartments for women, who, coming from without, could take baths at certain hours without entering the enclosure. These cells and apartments should be very numerous, and must each be preceded by an anteroom, in which the robes of the bathers can be deposited in the hands of slaves. A portico should give covered entrance to these chambers. In the enclosure proper of the baths there must be a garden refreshed with fountains, and supplied with seats and exhedras or semicircular benches of marble for repose and conversation; open courts for lecturers and philosophers; extensive uncovered promenades for those wishing to take their exercise without being crowded and jostled by the public; closed rooms for academical discussions; open palæstras or gymnasiums for those who would exercise themselves in various

games; academies closed and covered; porticos for the directors of the exercises where they would be removed from the noise of the palæstras; magazines for the storage of sand and oil for the wrestlers, for linen, fuel, etc.; great open courts or arenas for athletic sports, such as games with the ball or quoit; amphitheatrical ranges of seats for the spectators of these sports; and numerous apartments for the officers and slaves of the establishment. These various courts and offices are all to be arranged outside of and around the main buildings of the baths. To the latter access must be obtained by one or more vestibules; within, in succession, there must be apartments for undressing, with wardrobes, in charge of special attendants; waiting-rooms; the cold bath, a vast basin opening from the vestibules; tepid baths and apartments large enough for exercise, with places reserved for spectators; a warm room preceding the hot bath, which should be a large basin deep enough for swimmers; a smaller hot-water basin for those who would bathe more privately. Beyond the hot bath there must be other tepid baths and rooms, serving as a transition from the temperature of the *caldarium* or hot bath, through rooms of graduated coolness to the outer air. Annexed, for those coming out of the baths, there must be provided, on the one hand, apartments in which their bodies may be anointed with oil, preparatory to engaging in exercises and athletic sports, for which especial halls are to be provided, and on the other, there must be libraries and rooms for conversation, public readings, and lectures. There must also be prepared a closed, hot vestibule leading to the *sudatorium*, or sweat-bath, composed of rooms heated to a high temperature, regulated at will, and supplied with a basin of hot water, reservoirs, stoves, furnaces, etc. Rooms for the instruction of pupils in gymnastic exercises must also be included in this vast suite of apartments.

This programme not only supposes a building surpassing in extent any modern structure, but exacts from the architect the most difficult task which could be assigned him: the disposition *en suite* of very large and very small apartments, varying in height and superficial dimensions, and devoted to various specified uses. We shall see that constructors who could build barracks for soldiers on the simplest data, could also meet all the elaborate conditions of this programme with incomparable skill, truth, and exactness of judgment. But its various requirements were only satisfied by the application of a vigorous and logical principle.

Let us select for examination the Baths of Caracalla as the most complete of all the Roman baths, and as made most thoroughly known to us by the care and judicious criticism of the learned and modest Blouet, a professor whose loss we can never cease to regret. Let us study together the plan of this establishment.

Availing himself of the disposition of the land, the architect established a vast plateau A B C D. On the entrance side G and outside the enclosure were cells for separate baths provided with porticos and easy stairs. They were in two stories; each cell was vaulted with a round wagon-arch, like the cells of the prætorian barracks, and contained, as already mentioned, an anteroom and also a basin large enough to accommodate several people. The enclosure of the baths was penetrated by a grand open entrance in the centre of the side G and by several inferior gates along the length of the palæstras. On entering, the visitor found, in the midst of an immense space divided into gardens, walks, etc., a vast pile containing the principal halls and apartments of the establishment. The symmetry which distinguished this structure was the result of a practical necessity, and not a mere æsthetic refinement. It was composed of the great mass of the superior apartments, the cold bath at E, the tepid bath and room at F, the hot bath and vestibule at I, disposed singly in the axis of the edifice and dominating over the whole, while the subordinate and lower offices were doubled and grouped equally on either side of the main mass. This disposition afforded a reasonable accommodation for the crowds frequenting the baths, the important halls being kept spacious and proportionately high, to avoid embarrassments from the greater number of people they were destined to contain at once; while the inferior offices and adjuncts were doubled in number and diminished in size, that the public might be more conveniently divided and disposed for the purposes to which these secondary apartments were devoted.

The architect, with much intelligence, observed that an edifice, the resort of a great crowd at certain hours, should be supplied with many entrances to avoid disorder. Two of these were opened at J; within these he arranged two rooms, K, for undressing, with the wardrobes, L, attended by slaves. The rooms L′ were designed for the storage of sand and oil for the wrestlers. The vestibules or covered passages *n*, opening from the dressing-rooms K, on the cold-water basin E, were for the accommodation of those who came

merely to refresh themselves with a plunge or swim. The basin of cold water, E, was open to the sky, as it is not necessary to protect bathers in cold water from the rain, and as cold water in a closed place would be unwholesome. Apartments destined for those who desired repose or conversation were disposed at N. Thence the bathers penetrated to the tepid bath (*tepidarium*) F, which was divided into three sections: the principal one for the exercises, the two others on either side for the assistants. Smaller basins were placed in the recesses O, and in the midst of the two lateral rooms. At P were reserved two areas to contain the furnaces and reservoirs for hot water. From the centre of the tepidarium F there was access to a second tepidarium, O E, which served as a vestibule to the hot-water bath (*caldarium*). The two doors between this vestibule and the caldarium were relatively narrow and indirect, in order to avoid the introduction of currents of colder air into the latter. The caldarium was an immense circular room covered by a very lofty hemispherical dome, in order that the vapor condensed from the hot water might not concentrate and drip over the great basin. Smaller basins were reserved in the recesses of the circular wall for those desiring to bathe apart. Openings filled with glazed windows admitted light at the lower and upper levels of the caldarium. The bathers, wishing to leave, found at Q tepid rooms with basins of lukewarm water, serving as a transition between the temperature of the caldarium and that of the outer air. Thus those who were departing did not meet or interfere with those who were entering. Then came, in the same range, the cool rooms R, opening upon the outer gardens. From these rooms the bather, by crossing the open courts S, serving for exercises, and by passing through narrow passages, could enter the small lukewarm rooms which served as vestibules for the sweating-room (*sudatorium*). Reservoirs for warm water were arranged in the spaces P′ P′. At the extremities were the vast peristyles T, with exhedras, for those desiring to walk, converse, or listen to the public readers; then the spaces U were destined for the instruction of pupils in gymnastics; two especial vestibules, with libraries, were disposed at W; in the angles, at V, were placed basins of cold water for the use of those exercising in the arena for athletic sports (*xystum*) X, while the arena itself was terminated by graduated rows of seats for the accommodation of spectators.

On either side of the xystum were the gymnasiums Z, with the academical apartments *a*, and those reserved for debates at *b*; at *c* was the portico for the masters of the gymnasiums. At an isolated and tranquil point were the rooms *d*, in which the philosophers or lecturers were accustomed to confer. In fine, rooms for the attendants of the baths were at *e*, with lodgings above. At *g* were immense reservoirs in two stages, and the aqueduct which introduced the water is indicated at *h*.

It may be objected that, if the programme is here exactly filled, it is because it was prepared after the buildings were erected. But this observation would be unjust; for, if we examine the plans of the Baths of Agrippa, or of Titus, or Dioclesian, or Constantine, we shall find the same conditions equally well carried out with remarkable difference in the methods.

But what more especially deserves our attention is the skill and good judgment with which this plan is put together. Its disposition with regard to the points of the compass is remarkable. All the warm rooms faced the southwest, and the vast rotunda of the caldarium was raised to the height of more than half its diameter, so that it might receive the sun's rays all day long. Observe also how, with so great a space at his disposal, the architect economized his land; with what skill he fitted the various rooms together, profiting by every void allowed by the construction; how he shouldered, as it were, and sustained the great mass of constructions by using the smaller rooms to hold up the greater; and how well the thrusts of the vaults were met by those of the abutments. Observe, too, how clear and easy to read this plan is; how economical of space are its arrangements, how adroitly managed its issues, — large and numerous where crowds could collect, but small, deep, and indirect where larger openings would introduce dangerous currents of air and interfere with the various temperatures. The Romans were indebted to no foreigners for these ideas; they were the natural result of the desire and the power to satisfy their peculiar necessities by the most direct methods; and it followed from their social state that these methods were very simple and economical. These walls and these enormous piers were never constructed of cut stones, whose quarrying, cutting, transportation, and laying would be expensive and tedious, but of brick and rubble. The faces of the walls were built of triangular bricks, their larger side laid toward the exterior; the mass of the wall

within being composed of a concrete of coarse gravel and an excellent mortar. Binding courses of larger bricks were laid every four feet, as if to correct the construction and secure the levels. Discharging arches of brick, built in the mass of the wall, distributed the weights among the principal points of support. In the vaulting, the main arches or ribs were of large bricks, generally in two courses, the vaulting itself being a concrete of mortar and pumice-stone, beaten down on the form or centering of timber, on which had been previously laid two thicknesses of coarse tiling, — the whole forming a firm construction when this centering was removed. This simple, economical, and easily executed construction completed, the architects built their porticos with columns and entablatures of marble; the rough walls and piers were everywhere (at least on their inner surfaces) covered with a superb veneering of marble up to a certain height; and the rest of the wall-space, the vaults and niches, with painted stucco or a mosaic made of a vitrified paste of many colors. In all the rooms the pavements of tessellated marble were laid upon hollow floors, composed of large square double bricks or tiles resting upon little piers under each corner, with one under each centre; these pavements were not only dry and perfectly wholesome, but could be warmed beneath by currents of air from the furnaces.

Our own costly methods of construction, the useless quarries of stone which we accumulate in our buildings, and, in connection with this luxury, the extreme poverty of the details of our interior construction with plaster and paper to cover it, are, it must be confessed, barbarous enough, when compared with the simple, rational, and true methods of the Romans. At enormous expense we pile stone upon stone, employing all our resources to cut and carve them. We draw on our quarries, as if they were inexhaustible, to build our little structures; and after all our efforts and expenditures to erect walls of useless cost and strength, and admirable conductors of humidity, our resources are too much exhausted to enable us to adorn this precious material within in a suitable, permanent manner. So we call to our aid the plasterer, the worker in carton-pierre, the carpenter with his cheapest and lightest woods, the mechanical painter with his flat pigments, and thus with wretched rags and tatters cheaply conceal the unnecessarily costly material of our walls. If, as we pretend, we owe our arts to the Romans, and if our

THE BATHS OF ANTONINUS CARACALLA.

RUINS OF THE FRIGIDARIUM.

architecture boasts of being the daughter of theirs, we ought at least to imitate them in those respects wherein they were truly wise and reasonable, and not build in solid stone structures which they would more judiciously have constructed of brick and rubble, nor ape forms of architecture which resulted from a method of building which we cannot or do not care to follow. But the disadvantages of this substitution of cut stone for brick and rubble are not limited to considerations of expense and the inconveniences attending the misunderstanding of a principle. These great Roman monuments, constructed as their walls were, and with such an adroit disposition of smaller rooms profiting by the intervals left between the points of support, which were necessitated by the greater extent and height of the larger apartments, possessed an advantage of which we have not yet spoken: they were thus enabled to preserve in the interior a mild, equable temperature through all seasons, — an advantage which would be very precious in a climate like ours. St. Peter's at Rome recalls the general plan and system of construction of the great halls of the baths; now, by virtue of that similarity, this basilica, whose enclosed space surpasses that of any other known structure, maintains a temperature at all seasons nearly the same, soft and refreshing in the summer without humidity, and, in the winter, mild and dry. Thick walls of brick and rubble transmit from without neither heat, cold, nor dampness; they form, as it were, a neutral obstacle to the exterior temperature. But the buildings which we construct of stone are dangerous in the summer by reason of the dampness which their walls preserve, while in winter they are icy.

If we examine the elevations and sections of the Baths of Caracalla, we shall find in their outer walls enormous apertures, formerly furnished with bronze frames, containing plates of glass or translucent alabaster, or simply open to the outer atmosphere; but we shall also discover that these apertures opened towards the most favorable points of the horizon, carefully profiting by the heat of the sun and avoiding damp or cold exposures. In fact, the Romans attached great importance to the orientation of their edifices. Vitruvius returns many times to this subject in the course of his treatise; he even indicates the manner in which the streets of a town should be laid out to give the greatest comfort to the habitations and to avoid strong draughts. In Book VI., Chapter I., he says: —

"In constructing a building, our first consideration should be the

climate of the country in which it is to be erected; for the arrangement of a structure in Egypt should be different from that of a structure in Spain, a building in Pontus should not be like a building in Rome. . . . . In northern countries, houses should be very tightly built, and covered with vaults, and their apertures should be small, and face towards the warmest point of the horizon. In southern countries, on the contrary, where the heat of the sun is oppressive, the apertures should be larger, and open towards the north to receive the cooler and more refreshing airs from that quarter; thus the inconveniences arising from a natural excess may be obviated by art."

Now the Romans, when they became masters of the world, followed everywhere the same methods of construction, because, indeed, those methods were everywhere applicable; but their apertures for air and light were carefully disposed to suit the locality of their structures, as indicated in the passage from Vitruvius.

Before quitting the Baths of Antoninus Caracalla, I shall endeavor to give an idea of their vast and beautiful constructions by presenting in Plate VI. the actual state of ruin of the frigidarium, marked E on the plan, one of the noblest and most original conceptions of this great structure, and, in Plate VII., a restoration of the same part, both views being taken from the same point, ω, on the plan. In these we find an apt illustration of the principal peculiarity of Roman architecture, the essential distinction between the construction and the decoration, the building having been actually erected before the architect was called upon to ornament it. In Plate VII., in which the frigidarium is represented open to the sky, we can see, above the three great main arches, the apertures admitting light into the central hall F of the tepidarium, under the arches of the triple cross-vault which covers it.

The attention of the reader has been directed to the Baths of Caracalla, not because they are a fair epitome of all Roman architecture, but because they present the fullest development of the essential points of originality of that architecture at an advanced period of Roman history. According to Vitruvius, even so late as the age of Augustus, wood played an important part in architecture, not as a mere provisionary scaffolding or centering for the construction of vaults, but as a permanent means of covering buildings. Almost all the rectangular temples, whose plan and structure were

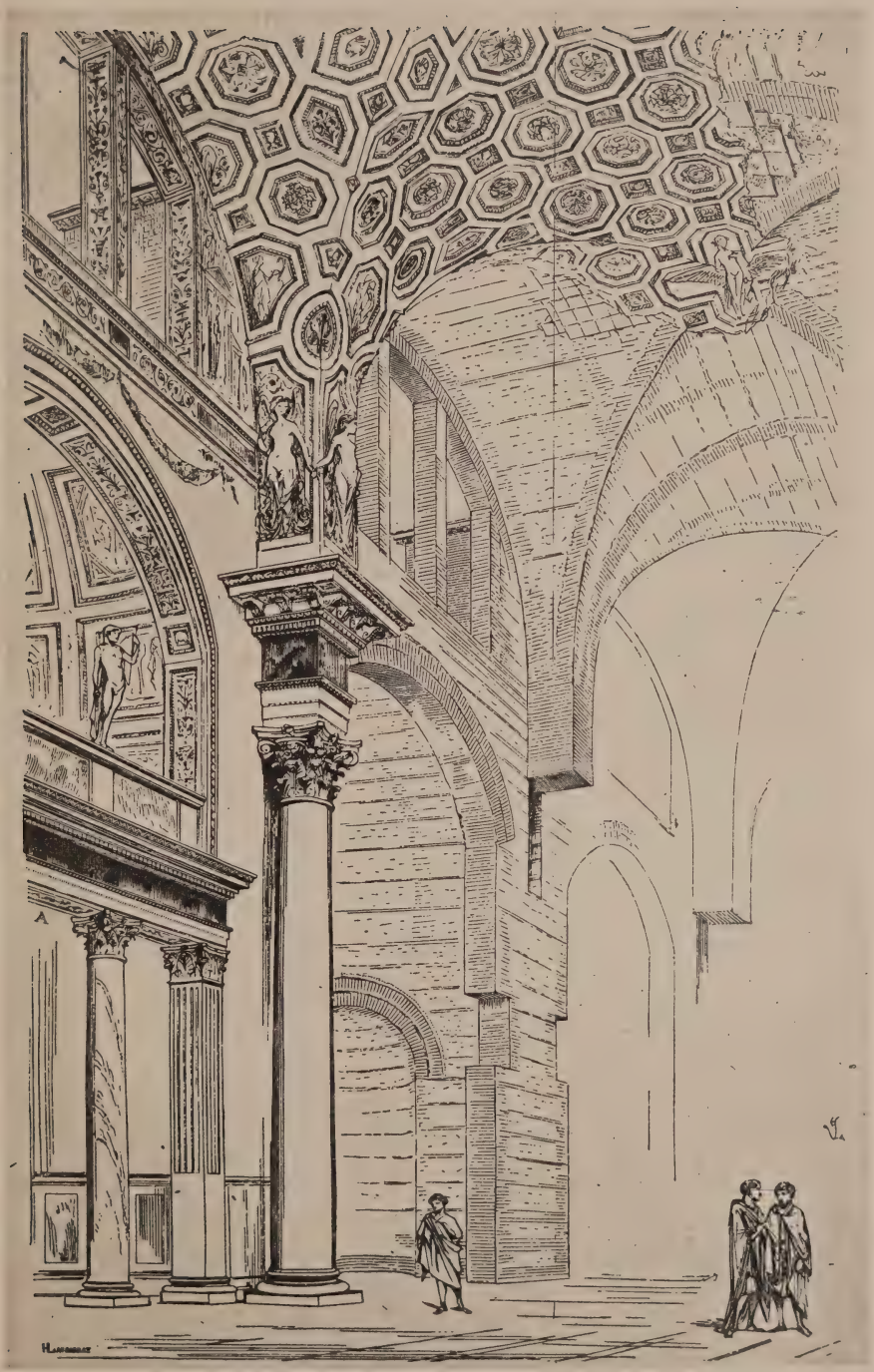
borrowed from the Greeks, and the naves of all the basilicas, were roofed with wood. It was not until after the great fire of Rome, under Nero, that the Romans almost everywhere abandoned these wooden roofs and substituted for them vaults in masonry, though the Baths of Agrippa and the Pantheon, in which the principle of the vault and dome was intelligently used, were built long before that time.

The great circular hall, the caldarium, of the Baths of Caracalla, closely resembled the Rotunda of Agrippa in many respects; but, if the details of its architecture were less pure and executed with less refinement and elegance, it must be admitted that, as a composition, it was superior to the Pantheon, so far as we can judge from the remains, especially as restored by the conscientious labors of the late M. Blouet. We cannot but admire the greater frankness with which the construction of this room was confessed both in the interior and exterior decoration.

The Romans particularly affected two principal dispositions in the construction of their vaulted buildings: the circular construction covered by a hemispherical dome, and the construction in bays such as we have seen adopted in the great central tepid room of the Baths of Caracalla, such as were used in the Baths of Titus and Dioclesian, and in the monument known as the Basilica of Maxentius or Constantine. Their vaults were either domical or semi-cylindrical; and it was by causing two of the latter (i. e. the wagon-vaults) to penetrate each other at right angles, that the cross-vault was found. These two systems, with this complex derivative, sufficed for all their uses, and the combinations of their plans were but the necessary consequences of the three methods. If they had a circular room, they covered it with a hemispherical vault; if a semicircular room, they used the half of a hemispherical vault; an oblong room, whose lateral walls were thick or well abutted by supernumerary constructions, they enclosed with the continuous wagon-vault; a square room, whose angles could withstand a thrust, was roofed with the cross-vault; and if, by reason of convenience, their oblong rooms or naves had to be pierced on the longer sides with three or more grand lateral bays, thus obtaining isolated points of support, there were three or more corresponding cross-vaults, the main longitudinal wagon-vault being crossed at right angles by the transverse wagon-vaults connecting the opposite bays.

This large and simple disposition divided the entire weight of the vault among the piers or buttresses, which were very often adorned, each on the inner face, with a column, receiving the foot of the cross-vaulting, as indicated in Fig. 16. This column, as it was always monolithic, the Roman employed as a rigid pier or vertical prop placed exactly under the springing of the vault, in order to furnish an incompressible and apparently light point of support. But here we can see that the Roman was not inspired by the sure taste of the Greek, or rather that it was only in exceptional cases that he preoccupied himself with questions of art; for he interposed between the springing of the vault and his column a full entablature with its architrave, frieze, and cornice, in the form of a block. If it is reasonable to place an entablature on a column as the artistic expression of a horizontal construction, as in the post and lintel system of the Greeks, it is hardly reasonable when the column is the vertical prop to the thrust of a vault; and we may well ask, Why use this entablature, and what signifies its cornice, or sheltering projection, in an interior, where it only serves to destroy the unity of aspect which a great room should present, whose vault is but the arching over of its walls? But, as I have said, the Roman seized the Greek order complete, without troubling himself to analyze or take into account the peculiar function of each of its parts, or to modify it to suit the strange uses to which he applied it. If he wished to establish a separation, after the fashion of an open screen, between two rooms connected by one of his great arched bays, as we have seen so often in the baths, he took a little order complete and used it as one would use a barrier or balustrade. Fig. 16 shows one of these secondary orders in A. He thus placed a little Corinthian order by the side of a great Corinthian order, their members and profiles being nearly the same, one the diminutive of the other. The result is that, while the great order seemed colossal, the little order, by comparison, appeared insignificant and mean. As the invention of the Roman was ingenious and copious in construction, in decoration it was sterile; the more wealth he lavished on his ornaments, the greater was the poverty or rather indifference to taste he manifested, for the more precious the material, the more fastidious should we become regarding its form. In the baths, the Roman was Roman indeed, and the decoration he saw fit to borrow from the Greeks had really an importance so secondary that it would be lost time to dwell upon its details.

Fig. 16.



The Greek must have been very much embarrassed, when placed among these great Roman concretions, to decorate them with his delicate architecture, the issue of constructive methods so vitally different ; yet, we must admit, there was a certain grandeur and fitness in the manner in which the rough but workman-like construction of the Romans was covered with precious marbles, with stucco and painting, and in which these entered into the composition of the orders and harmonized together.

But Roman buildings were not always so absolute in their use of architectural details, nor was their decoration always so distinct from the construction. In the basilicas, for instance, whose plans, construction, and decoration were, however, a Greek tradition, the two principles were in harmony. We shall presently have occasion to examine and study this structure, and shall see how it became a great type, and what transformations it underwent in the hands of the mediæval builders of Western Europe.

If Roman architecture was monotonous as regards the decorative envelope, it was, as we have said, fertile in structure and in the development of plans. The practical requirements of Roman structures, as met and solved by the architects, resulted in marked distinctions of character between their buildings. It is impossible to mistake a Roman bath for a theatre, a theatre for a basilica, a basilica for a temple. The exterior aspect and the plan of the Roman monument were always a frank confession and expression of its uses and requirements ; the Romans never sacrificed these to the puerile satisfaction of making what we call *architecture*. Their first aim was the simplest and most exact expression of the programme ; their second, to clothe the forms, thus indicated by practical necessity, with an effect of power and wealth. If the programmes were vague, if the practical requirements to be accommodated were not sufficiently well defined, as in the basilicas, for example, which were sometimes promenades, sometimes markets, or exchanges, or tribunals, or places of discussion, the architects varied their plans according to their own interpretation of the immediate or local conditions of the problem. But if, on the contrary, the programme was positive, if necessity or experience dictated the general plan and detail of the design, as in the case of theatres, amphitheatres, and circuses, an invariable conventional form was adopted and everywhere repeated with scarcely a modification. Thus the Coliseum, the

amphitheatre of Verona, the arenas of Nismes and Arles, are in general disposition, plan, exterior aspect, and method of construction nearly identical. The Romans derived their amphitheatres, or at least their spectacles, from the Etruscans; but the Greeks did not adopt them until their country had become a province of the empire. Up to the time of the Gracchi, at Rome, temporary ranges of wooden seats and scaffoldings had been constructed for the spectators of the sports of the circus; but, under the emperors, durable and permanent structures were erected, so disposed as to accommodate conveniently in their enclosure an immense concourse of people, each of whom had an unobstructed view of the combats between gladiators, animals, condemned prisoners, and even ships, which took place in the arena.

"The Etruscans," said Quatremère de Quincy, in his *Dictionnaire Historique d'Architecture*, "addicted to all sorts of religious superstitions, appeared to have imbibed a sombre spirit, a cruel and ferocious disposition, and savage prejudices. In thunder and lightning, in the usual ills and scourges of nature, they saw the anger of the gods, to be appeased only by blood. In Etruria, therefore, the sanguinary combats of the arena were not, as afterwards in Rome, the mere amusement of an idle and remorseless population, but a religious rite, and religion built their amphitheatres."

The primitive amphitheatres of Italy were mere circular or elliptical excavations surrounded by slopes, occasionally supplied with temporary scaffolding, erected at the time of the celebrations, to accommodate the spectators. The remains of that at Pœstum are of this character. This simple programme gave occasion to the Romans to build immense structures in masonry, which, however, in all cases, rigorously followed the primitive forms in terraces and wood. The theatres of the Greeks were ordinarily disposed in a semicircle on the hollow flanks of a hill, with a favorable aspect, the circles and descending grades being cut in the rock, and surmounted by a structure of wood, and the scenery being constructed partly of wood and partly of masonry. Such were the theatre of Syracuse, all of whose ranges of seats remain, and that of Ephesus. But the Greeks had no amphitheatres; the barbarous spectacles to which these structures were devoted were little suited to a refined people who sought emotion rather in the dramatic development of the passions, in poetic fictions, than in the savage realities of a massacre. The Romans, on the other hand, were greedy for the sanguin-

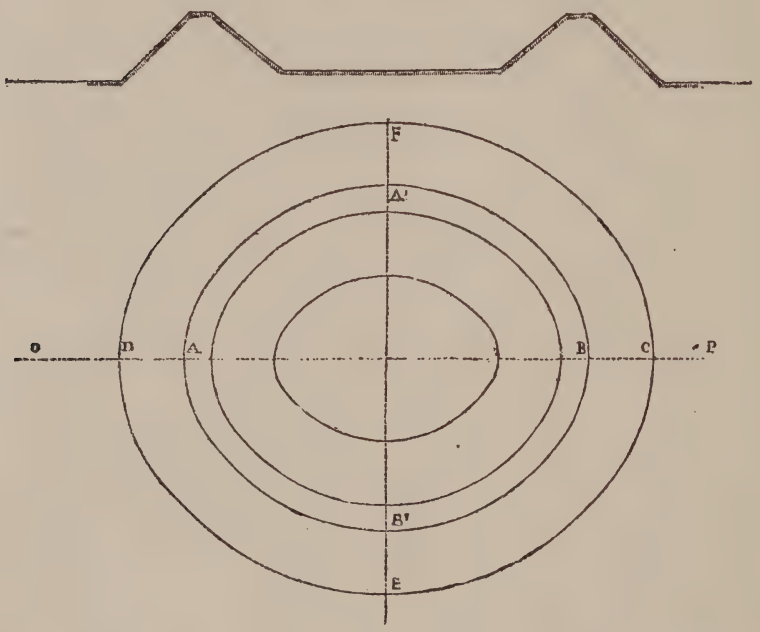
ary spectacles of Etruria, in the beginning, perhaps, to satisfy certain religious principles, but, in the end, merely to occupy and distract the idle populations of great cities; and they did not fail to bring to bear on these structures their invariable and peculiar administrative genius, to regulate and give them, as it were, an official character, perfectly suited to the service for which they were destined, in order to avoid confusion and disorder; for, in admitting and even sharing in the brutal instincts of the plebeians, the magistrates endeavored to develop these instincts in an orderly manner and always under their own eyes. It was the policy of government. They did not seek to ameliorate or to stifle the barbarous passions of the people, but to rule and direct them according to certain ordinances of police, preferring to furnish regular food for these passions rather than to see them develop in riot in the market-places.

The largest amphitheatre constructed was that known at Rome as the Coliseum; it could contain one hundred and twenty thousand spectators. But it is a singular fact that this edifice was begun and finished by the two most humane and enlightened of all the Roman emperors, Vespasian and Titus, his son, and it is said that the work was completed in two years and nine months. These two emperors therefore regarded amphitheatres as among those monuments of public utility whose erection was most important to the welfare of Rome. However much the emperors loved vast and splendid monuments, it can hardly be admitted that two of the wisest among them would have devoted enormous treasures to construct with such marvellous precipitation an edifice of this character, unless its utility had been regarded as urgent indeed.

The artificial mounds which surrounded the early Italian arenas like a crater, had the double disadvantage of obliging the spectators to mount the outer slope in order to descend to take their places on the inner, and of occupying an undue amount of space with its outer slope of 45 degrees or less. That is to say (Fig. 17), in order to obtain an arena whose diameter should be equal to A B, A′ B′, all the space B C, D A, A′ F, B′ E, had to be sacrificed to bank up the earth. In speaking of the baths, the attention of the reader was drawn to the economy with which the Romans occupied land in their structures, limiting the spread of their edifices to the spaces deemed absolutely necessary to satisfy the conditions of the problem. Even in the early days of the republic, Rome was so crowded and

the public buildings so considerable and numerous, that economy of space became an absolute necessity to the architect in that city. Custom presently converted this into an invariable law among the Romans, even when ample space was available for their buildings. The theatres, which they built after the Greeks, and the amphitheatres, which they copied from the Italian nations, were at first mere temporary wooden structures, such as are now occasionally constructed in Spain and even in France; but the frequency of fires, the difficulty of obtaining the necessary quantity of material,

Fig. 17.



the ephemeral and unstable character of these structures, soon obliged them to build their amphitheatres of masonry. One of the first thus built was the theatre of Pompey at Rome, now in ruins; and before long stone amphitheatres were constructed, not only at Rome, but in nearly all the cities of the provinces.

In constructing their amphitheatres the Romans closely adhered to the type of the primitive terraces; that is to say, they constructed steps of stone around an elliptical arena, suppressing, however, the exterior slopes, and supplying their place with an upright wall,

pierced with numerous bays in successive stories, so as to establish under the grades of seats such passages and staircases as should enable an immense number of spectators to enter and spread among the seats at various heights, or to leave promptly and without crowding. The staircases regularly arranged around the arena gave access to the seats by openings called *vomitories*. One must visit the arenas of Arles, Nismes, Verona, and especially the amphitheatre of Vespasian (the Coliseum) at Rome, to form a just idea of these vast monuments, so judiciously combined in general plan and in the numerous details of their construction, — monuments in which we find no lost space, in which everything concurs to carry out a well-understood programme of requirements, — monuments, in fine, combined with severe economy, but made to last forever. Here, better than anywhere else, can we appreciate the *cellular* system of Roman construction, which consists in elevating and sustaining enormous masses by means of points of support or isolated walls, united together and mutually propped by vaults at different stories. The whole construction of the amphitheatres consists simply of a succession of partition walls all tending towards the centre of the ellipse, and covered by ramping vaults following the slope of the grades of seats and sustaining them. The encompassing wall, strengthened and tied by these numerous buttress-like walls of partition, has little but its own weight to support; it is, properly speaking, but an envelope which can be removed without interfering with the solidity of the sloping grades, which is the main object to be attained. Indeed, at Verona, this exterior wall is now almost entirely destroyed, yet the amphitheatre remains in a sufficiently good state of preservation to serve still for certain public festivals.

There is yet to be seen at Pola in Illyria a vast amphitheatre built probably under Diocletian; here the ranges of seats and the staircases were originally of wood, and the exterior elliptical wall was the only portion constructed in stone. It is the primitive amphitheatre of the republic enclosed in masonry. It is probable that this method was often adopted in the provinces, principally in well-wooded countries; it was a ready and economical means of constructing a monument of the first necessity to the Romans, as it served not only for their games, but for their popular reunions. The amphitheatre of Pola is another example, showing how the Romans always adopted the simplest and most convenient method of carrying out the vast

architectural schemes imposed by their civilization; how they varied their architecture to suit local necessities and circumstances, as regards material, time, and resources, without infringing on the conditions of the national programme for such structures, which seems to have had all the rigor of a law. The exterior stone wall of this amphitheatre, which is in an excellent state of preservation, is one of the most remarkable examples of Roman architecture, not on account of its details, which are rough, unfinished, and in a bad style, but by reason of the excellent judgment, the characteristic skill and solidity, with which it is built. It is another instance of how little the Roman cared for that perfection of form, that refinement and delicate study of details, which was the most characteristic preoccupation of the Greek.*

The ranges of seats in the amphitheatre of Flavius Vespasian (the Coliseum of Rome) were originally crowned by a gallery or portico of wood, for the especial accommodation of females; but after this gallery had been destroyed by fire, it was rebuilt in marble with a ceiling of wood by Heliogabalus and Alexander Severus. Of this upper gallery nothing now remains but a few broken columns and capitals. The Coliseum has been made familiar to all by numerous drawings and engravings, and, above all, by the remarkable work of M. Duc. Instead, therefore, of entering into a long description of this structure, I would draw your attention simply to certain general dispositions which it exemplified, so that it may be clearly understood how the Romans proceeded when they had a definite programme to carry out.

That which first strikes us in the Roman amphitheatres is the elliptical form of their arenas and encircling ranges of seats. There must have been some good reason for this, as it would have been much simpler both in design and execution to adopt a circular plan. To make the partition walls, bearing the seats and separating the staircases, radiate towards the foci of an ellipse, presented a practical difficulty to be carefully avoided unless there was an absolute necessity for such an arrangement. Now, in the Roman theatres, the ranges of seats were disposed in a semicircle in front of the stage. It would seem, therefore, that to build an amphitheatre, it would only be necessary to bring together two such semicircles, with the

* See the general views and details of the amphitheatre of Pola in the fourth volume of Stuart's "Antiquities of Athens."

two stages or orchestras included between them in the arena. But, observe, the stage of the Greek or Roman theatre was not so constructed as to bring the eyes of the spectators to a point, for it was a space much more wide than deep along which the actors were necessarily obliged to spread themselves. For the same reason, the arena of the amphitheatre, instead of being made circular, thus always crowding the spectators towards a common centre, presented an oblong space, which, by its shape, compelled the numerous actors in those bloody dramas, which were often but frightful and disorderly *mêlées* of men and savage animals, unconsciously to divide themselves and widen the scene of combat. This oblong arena not only afforded the combatants a larger and more favorable field than a circular one, especially when two masses of men were arrayed against each other, but enabled the spectators to command a distinct view of the various phases of the combat along a somewhat extended line, instead of concentrating their attention on a single point. But theatres and amphitheatres were not confined, in their use, to public sports and scenic representations; these structures were places of popular reunion, where the multitudes were accustomed to gather whenever an oration was to be delivered, an election to be held; in a word, they were open for all those occasions of public assembly which the political system of the Romans rendered so frequent.

Let it be clearly understood that I dwell upon this subject in order to illustrate the distinctive characteristic of the Roman building as the result in every case of an exact and carefully studied observation of practical necessity, never, as too often in our days, submitting its dispositions to caprice or to mere conventional rules of architecture, which, in reality, serve but to embarrass and distract the architect from the real issue. In constructing such a vast edifice as the Coliseum, on an elliptical plan, though a thousand practical difficulties presented themselves, difficulties of planning, laying out, and construction, difficulties of general design and of detail, — for while, to construct a circular building, it would have been necessary to lay out upon paper or upon the site itself merely a quarter, an eighth, or even a sixteenth of the whole as a model for the rest, an elliptical plan required a separate study of a certain number of sections comprising at least a quarter of the whole, — yet, as the conditions of the programme were established on an exact observation of the destination of the structure, the Roman

architect did not suffer himself to be turned aside by any such perplexities. It is in this respect that the Roman monuments should serve as examples for us, as among no other people have the general dispositions of the plan exercised so absolute a power over the architecture, or, more properly speaking, the structure of their edifices.

The Roman never felt about in the dark; it was the sign of a very advanced state of civilization that he submitted everything to common-sense. He dictated like a master who knew what he wanted and what was necessary; he made himself obeyed because he made himself understood. Since his time architecture has been less distinctly defined; governments no longer impose definite tasks on their artists, and the artists must interpret as well as they can the vague ideas suggested to them; and if, under these circumstances, they can arrive at remarkable results, they cannot attain that strong common-sense, that unity, which is the basis of Roman architecture. At present, notwithstanding our civilization and the power of our institutions, we are in a state of chaos and disorder as regards art; we know not what we want; and our public buildings, for the most part, are no sooner finished than their deficiencies become evident, and we must needs modify or recommence them at great expense.

Our artists discuss about style, preoccupy themselves with considerations of the architectural order to be used, blame or approve such a form of art, adopt or dismiss such a tradition; but as for that large and true way of appreciating the architecture which should belong to a great people, they hardly think of this, and are content if they are allowed to use the mouldings they prefer, or to place columns here or pinnacles there. If we are Latins, as has been said, let us at least resemble the Latins in those qualities which distinguished them above all others. Indeed, I very much fear we are more like those Romano-Greeks of Byzantium, who disputed about the Transfiguration while the armies of Mahomet II. were thundering at their ramparts.

An essential point of difference between the mind of the Greek and that of the Roman consisted in the fact that, while the former allowed himself to be governed by his artistic sentiment to such an extent that he regarded it as a necessity to submit practical requirements to the principles of art, the Roman never permitted these

principles, or, if you please, the love of absolute beauty, to take any such precedence. Let us take a striking example: The Propylæa of Athens or of Eleusis, instead of being treated like the gates of citadels, which they are, would recall, on their exterior faces, the façades of sacred temples, were it not for the three doors pierced in the walls behind the porticos. But the Romans never gave to the entrance of a citadel the appearance of a temple. With them, the form of every edifice was the true expression of the purpose to which it was devoted, and if the architectural details, the borrowed decoration, contrasted sometimes with this general form, it had not such importance as to influence the real mass imposed by the programme.

We shall see what further developments this principle assumed and into what abuses it finally fell; for all principles, however good or true they may be, are destined to perish, not so much by abnegation as by misapplication.

We shall also see presently how, in times when it was intended to reproduce Roman architecture, the essential qualities of that architecture were neglected to imitate that which was not essential; that is, the decorative envelope, to which the Romans attached no other ideas than those of luxury and fashion.

FIFTH DISCOURSE.

ON THE METHODS TO BE FOLLOWED IN THE STUDY OF ARCHITECTURE. — ON THE BASILICAS OF THE ROMANS. — ON THE DOMESTIC ARCHITECTURE OF THE ANCIENTS.

WHEN we undertake to explore the course of a river, we do not start from its sources, but from its mouth; we advance against its current and examine its gradually contracting banks. We include all its tributaries in our researches, we study their shores, their rapids and cataracts, and pursue our investigations even to their several fountain-heads. By this means we arrive at a knowledge of the nature of its principal waters, its drift, the causes of its ebb and flow, the wash of its banks, and the character of its sources.

Now, since, in the modern practice of architecture, purely scientific or technical knowledge is not regarded as sufficient, but the study of the architect must embrace historical precedent, let us examine the stream of time with all the thoroughness of the geographical explorer, and ascertain the origins of the arts and the often-conflicting principles which gave them birth. It has been our fate to come after the Asiatics, the Egyptians, the Greeks, the Romans, the Middle Ages, the Renaissance; and, since the nineteenth century, it has been common, therefore, to confound architecture with mere archæology, and to limit the study of this art to a knowledge of antique precedent and an examination of the practical methods supplied by experience and tradition; this is an unfortunate fact over which we can have no control. Let us, therefore, make the best of it, and when we hear in our schools of art such teachings as this, "You must study this river, not from its mouth to the sources of all its tributary streams, but from the mouth of this tributary to the

mouth of that, for it is only in this part of its course that its waters are pure and its banks fertile," let us reply, "Not so; for, if the unexplored portions of the stream above and below the points which you assign as the limits of study were examined, would not the sphere of our observations be so enlarged as to enable us to compare many different features and results, and consequently to form better and less prejudiced opinions?"

The artists of the Renaissance, in their love for heathen antiquity, evinced more enthusiasm than reflection; they were like those who, having discovered the remains of some buried city, marvel at the beauty of each fragment, and heap them together without order, taking no care to discriminate whether they belong to one or to several monuments, whether they are of the same age, or whether they possess more or less artistic value. Vanity is apt to incline men to regard as particularly precious, not only what they originally produce, but what they happen to be the first to find in their path. "This pebble is more beautiful than yours, because I picked it up." Far be it from me to blame this artless sentiment, for, under its inspiration, discovery and research have brought to light many a masterpiece which otherwise would have been lost to the world; but when very many of these pebbles have been gathered together, classed, and duly labelled, it is well, perhaps, to distinguish those which are precious stones from those whose only merit is in having been picked out of the dirt. Admiration and enthusiasm are necessary to the true artist, they inflame him with a proper and wholesome zeal; but, unless this fire is kindled by worthy objects, it must soon be extinguished without having produced any other result than a mere transitory and unfruitful passion. He who loves the noble and the pure becomes himself ennobled and purified; but he who prefers the companionship of the vulgar and degraded becomes himself debased. Discrimination and research are therefore of the greatest importance to the youth who enters on the career of art; but, at the present day, discrimination is difficult in proportion to the greater number of objects to which it must be applied. We have in our libraries and our museums drawings and other reproductions of innumerable monuments, belonging to all ages and all civilizations, but we do not possess a method of appropriation and classification; for I do not believe we are justified in regarding as such the exclusive preferences and prejudices of those schools and coteries of art among us which

have no longer the principle of life in them, and whose existence is only manifest in fretfulness and caprice, without aim and therefore without result.

When archæological knowledge was less extended and minute than at present, the methods of architecture were comparatively simple, for all education in the arts was necessarily circumscribed by the limits of this knowledge, and fewer side issues were presented to embarrass the student. Thus, for example, it is useful to observe how the monumental remains of antiquity, and the contemporary writings regarding them, were interpreted by the three centuries preceding the present. The French translators and commentators of Vitruvius in the sixteenth century did not labor to revive the actual appearance of the structures described by that author. The Italian school, sufficiently pedantic at that time, aimed to be more antique than the ancients, and restored the monuments of antiquity according to certain conventional rules recognized in that school, but, happily, not known to antiquity, which, like all good epochs of art, was unembarrassed by any such artificial restrictions. Under Louis XIV., we find Perrault translating Vitruvius and composing from his text antique monuments whose structure is impossible, and whose form recalls the bastard architecture of his own day. Afterwards, the dislike for mediæval art was so great that certain principles of antique architecture were rejected, simply because the builders of the Middle Ages understood how to use and profit by them. Whatever we may say of those distinguished men who wrote concerning architecture in the last century, and even at the beginning of this, to us their artlessness and simplicity regarding the classic authorities, as well as their thoughtless omissions, render them unreliable as archæologists. Thus the French translators of Vitruvius in the sixteenth century, in illustrating their author, designed Renaissance monuments; Perrault has given us the architecture of the age of Louis XIV.; the Italian commentators composed in the style of Vignola or Palladio: but none of them produced antique monuments. These men, though they opened the way to archæological information, were fortunate enough to be artists and not archæologists. I am certain that their condition in this respect was better than ours; but, I repeat, we have not chosen our epoch, we were born in it, we must take it as it is and live its life.

It is very important that young architects should be taught to

reason, to habituate their minds to study and analysis. Instead of this, most of them abandon classical studies before they have mastered them, on the principle that, while life is short, the art of architecture is long. Under these circumstances, the architectural student is not in a condition to discriminate wisely and develop well, as would have been more likely to occur if his education had been simple, logical, and directed with a single and definite aim, — if, as was the case two centuries ago, he had had to deal only with certain conventional and universally recognized forms of art, or if his attention had been exclusively confined to certain authors or monuments. But the happy days of such academical restrictions are over, and the professor has no need to fear to see his pupils going hither and thither, picking up good and bad seed outside of the school. At present new objects, giving birth to new ideas, are constantly thrust upon our attention. It no longer requires six weeks to go to the eternal city; Africa and Asia are at our doors; photography inexhaustibly spreads abroad reproductions of the monuments of human thought and labor in every age and clime. The academical method of instruction in architecture, wise and sensible in the time of Louis XIV., for which it was made, is now invaded upon every side. Architectural works, which fifty years ago would scarcely fill a single shelf in our libraries, now crowd an entire room. Every pupil possesses or can possess elements of information which formerly were concealed in the cabinets of masters and exhibited only to the elect. The old barriers of academical exclusiveness, in spite of the eloquent protestations of the schools, are overthrown and trampled under foot; they are lost in a flood of written, engraved, photographed, and moulded productions, which fill our cities and surprise the pupils even in the studio of the master, undermining his systems, contradicting his instructions, and attacking his principles. What then must be done? Must we prevent the publication of books, photographs, and engravings, and forbid the architectural student from availing himself of the steamboat or railway to see with his own eyes what has been done in his art in all time and in every country? Must we go back to the stage-coach or post-chaise; must we establish a *cordon sanitaire* around the school of art, and cloister the pupils there? It seems to me there remains to us only this alternative, or else to assume our task resolutely, and make use of all that which our own times have so abundantly thrown into our hands. If we cannot arrest the torrent, let us make for it a bed.

In the midst of so many books, prints, and photographs reproducing the arts of the past, it is indeed a singular illusion to suppose that the student can entirely overlook the works of five or six centuries, and that he will not be fascinated by them and study them; instead of trying to prevent this, it seems to me much wiser to endeavor to teach him how to discriminate among them, what to take and what to throw aside. Yet, to review one by one all the monuments of antiquity, of the Middle Ages, and of the Renaissance, to describe them to the pupil, to point out to him what we consider their several beauties or blemishes, however scrupulously the task may be performed, is evidently not the proper way to indicate what should be received and what rejected; this would simply be communicating the personal ideas of the master, and could only result in confusing minds prompt to seize on appearances and to be fascinated by forms, without accounting for the reason of their existence. It is therefore by teaching youth to reason on that which he sees, by instilling in him the great principles of truth, immutable in all arts and all times, that we can aid him in his efforts to guide himself safely through this flood of examples, and can enable him to discriminate with wisdom and justice. But it must not be forgotten that, if possible, there is something more dangerous to art than confusion; it is sophistry. While we, as artists, desire to look, each one only out of his own narrow window, and hope to persuade our pupils that this commands the only favorable prospect, the republic of arts is filled with amateurs, more zealous than enlightened, who, without any practical acquaintance with the arts, pretend to know the true path and to show it to all. One has seen the Parthenon, or has cleared away a few courses of stone in some buried monument of antiquity; he knows nothing about the church of his own village, yet he would persuade you that Greek art is the only one suited to our needs. Another has been shut up in his own province, and pretends that his cathedral alone possesses the *Christian sentiment*. A third regards the architecture of this world as beginning under Augustus and ending under Constantine. A fourth declares that the architects of the Renaissance alone knew how to take up the productions of antique art, and that we must exclusively devote ourselves to the consideration of their work. Each will sustain his position by the most persuasive and convincing arguments, but none of them will be reasonable, because none have ever known how to lay one stone

upon another, how to frame a beam, or to discriminate between the proper employment of brick or stone. Each school of artists applauds that particular sophistry which flatters its own passion or interest, and forgets that, in abandoning itself thus to the judgment of people without practical acquaintance with art, other judges will arise to-morrow to condemn with as little authority. Let us manage our own affairs, and try to understand each other, though, in truth, it is said that this is no easy task among men of the same profession. Yet, as we must all submit to the same laws, we ought to know what they allow and what they forbid.

Let it not be understood that I am protesting against all unprofessional criticism. We ought to listen to public opinion, for I aim not to make of the body of architects an exclusive sect, interdicting all outside examination or criticism of its doctrines or its works. I desire only that, in the midst of an actual anarchy as regards art, the various schools or fractions of schools should, in order to increase their influence, lean upon something more substantial than opinions uttered by amateurs, more or less enlightened, should have recourse rather to common-sense, founded upon experience, than to shallow theories and generalities about the different styles of art; for often a single word from a practical man will destroy a whole system of mere superficial reasoning. I anticipate what will be said to me here (and it will not be for the first time): "You reduce the part of the architect to the part of the mason; you give too much importance to the practical; architecture is something more than the mere art of accumulating and putting together material in a solid and workman-like manner; it is the sister of music and poetry; it should leave much to the imagination, to inspiration and taste; its material laws should be even made subordinate to the same divine afflatus which inspires the musician and the poet." It may be so; yet the musician, however inspired he may be, if he does not understand the rigorous laws of harmony, produces but an abominable jingle; and the poet, however possessed by the muse, if he knows neither grammar nor prosody, had better keep his poetry to himself. But, if everybody can detect bad grammar or an ill-made verse, if all ears are offended at a discord or a false note, it is unhappily not the same with architecture. Very few recognize a fault of proportion or scale, an error of construction, or a disregard of even the most vulgar rules of practice. Sheltered behind this common ignorance, all kinds of licenses are allowed, and

they confront us at every turn. It is not every one who can execute an opera or edit a classic; and, if the experiment should be tried, the director or the publisher would soon have cause to regret that he had given to this one the use of his theatre and to that the use of his presses. But every one can, in a manner, pass for an architect, can build; and the public, unfamiliar with the art, will not hesitate to approve a conception without reason, or harmony of form.

We may differ totally concerning the manner of expressing our ideas in architecture, on the form we would give to our conceptions, but we all agree as to the value of rules imposed by common-sense, by experience, and by the undeviating laws of statics. Let us, therefore, in this question of architectural education, begin by establishing this agreement, not by unnecessarily raising questions of form or style which, after all, have but a secondary importance. Let us teach how every true period of art has endeavored to follow these invariable laws, how a given schedule of requirements should be received and interpreted by the architect, and let us not post before the eyes of youth our individual preferences and prejudices, which, as they are founded neither upon reason nor upon taste, only confuse the public, when they are expressed in actual buildings, and present results which can satisfy neither the fancy nor the superficial knowledge of the multitude. I desire that this appeal for concord may be understood; it would be understood, if every architect, instead of imputing to his brother the notions with which he is vulgarly supposed to be imbued, would examine his true opinions. If this desirable mutual understanding were attained, instruction, instead of declining and falling into confusion, would certainly arise to a much higher level. The youth, who, under the present system or no-system, takes sides with a blind passion, exaggerating the points of difference between conflicting schools, would know that, in our art, there is one sure path, that indicated by wisdom and by reason; let us not seduce him to the sentiments of this or that school by absolving him from the necessity of that serious and catholic study, that toilsome and material investigation, by which alone he can arrive at broad ideas and free himself from dangerous prejudice. I do not pretend that architecture is simply an art of reasoning, a pure science, in a word; but, as it is in peril, we must hasten to the point where there is the greatest danger. When the house is on fire, we do not stop to discuss whether it is built according to the

rules of Vitruvius or in the mediæval spirit, but we run for water. I have already explained why we should not, in the present day, endeavor to make one form or style of art prevail over another. Our duty is not to create preferences or exclusions, but to appeal to reason, to analysis, the science of classing and selecting after having compared; this is architectural instruction in a practical path, without exclusions, preferences, or vain theories. We live no longer in a time when entire ages of history can be effaced; and if some tardy professors still believe that their silence regarding certain epochs is a service rendered to art, they labor under a melancholy delusion; this very silence provokes research, this very provocation leads to exaggeration of the value of the results of such research. To pretend to conceal a thing which is in the reach of everybody, to overlook or disdain a general sentiment, is the folly of all systems in their decline, in politics, it is the origin of violent revolutions; in the sciences and arts, it is a door open to extravagances, to audacious ignorance, to thoughtless reactions, to confusion and forgetfulness of elementary principles. In times of transition and new birth, like our own, I believe the only way of assisting in this birth (and what more can we do?) is to examine everything in good faith and without passion, to balance accounts, as it were, with the state of our knowledge thus acquired; if we, mere atoms lost, in the common flood, pretend to direct in this great movement, I believe it should be only by the use of our best guide, our reason, our faculty of comparing and deducing. If this guide is not infallible, it has at least the quality of illuminating every step of the road and of enabling those who follow it to recognize and rectify their errors. This is less dangerous than silence, for silence is obscurity, and in obscurity every one stumbles.

To conclude, I will add, then: First, that the time has come when to direct exclusive attention to any particular period of art is no longer permissible; to insist upon that which we take for good and wise doctrine, is to try to circumscribe the spirit of youth within certain limits, which, though they might have been large enough a hundred years ago, when the knowledge of architectural forms was restricted, do not exist to-day; it is to perpetuate a sad confusion, to deny an enormous mass of information acquired, of researches and useful works. Second, that, in the state of doubt into which the best minds have fallen with regard to doctrine, it is not so much

the various forms and styles of art which are to be taught, as its invariable principles, that is to say, the reasons why certain styles, structures, and methods existed at certain times rather than others, and how transformations and modifications of style accompanied changes in national manners and requirements; but the things to be rejected are vague theories, all systems which are based upon traditions and are not evolved from a logical chain of practical necessities, and all those formulas which are claimed to be inviolable, but which were never used during the really brilliant epochs of art. When faith is wanting to men (I mean true, indisputable faith), reason, the sentiment of truth and justice, remains our only guide; the instrument is imperfect, I am aware, but it is better to use this than to have none at all. Modern pride has replaced the fatality of classic antiquity and the resignation of the Middle Ages. Let us, in the republic of the arts, have in view this change in the spirit of civilization, which, in politics, has already had its influence. It is encouraging to see that the leaders of the various architectural schools, who accuse us of aiming to drag the mind backward, are acting as perhaps the Athenian magistrates or the mediæval corporations acted in view of the logical developments of art in their times, and that we, too, are obliged to claim the independence of reason in the arts. Voltaire described many similar contradictions of his time; we, therefore, need not despair of the future.

It is, therefore, I think, by reasoning that the present generation of architects must work; and I am convinced that, by habituating themselves to reasoning, they can purify their taste. Every man who is born an artist possesses his art by *intuition*, but this intuition can only be successfully developed by calculation and experience. It is a curious phenomenon of mental philosophy that we owe much more to induction than to intuition for new ideas. Thus, if we would have an architecture of our own, we must stir up ideas, not stifle them; by the aid of our reason, we must examine them on all sides, we must prove them by comparison and by attrition. The ancients had an advantage over us in not possessing such an enormous mass of precedents as we are obliged to keep in view; they also had the benefit of an education in perfect harmony with their social state, while ours is but a crude and undigested accumulation of old traditions which no one believes, and of new sciences which are in manifest contradiction with those traditions.

Let men enjoy their inestimable privilege of grumbling over the degeneracy of our era as much as they will; but, for me, this century is as good as another, and I am willing to take it as it is. If every one were ready to do as much, it would have its original development of art; to this end we have only to avail ourselves of our faculty of reasoning, and to cease to act as if we believed that we are still living under Louis XIV., and that M. Lebrun is still superintendent of the fine arts in France.

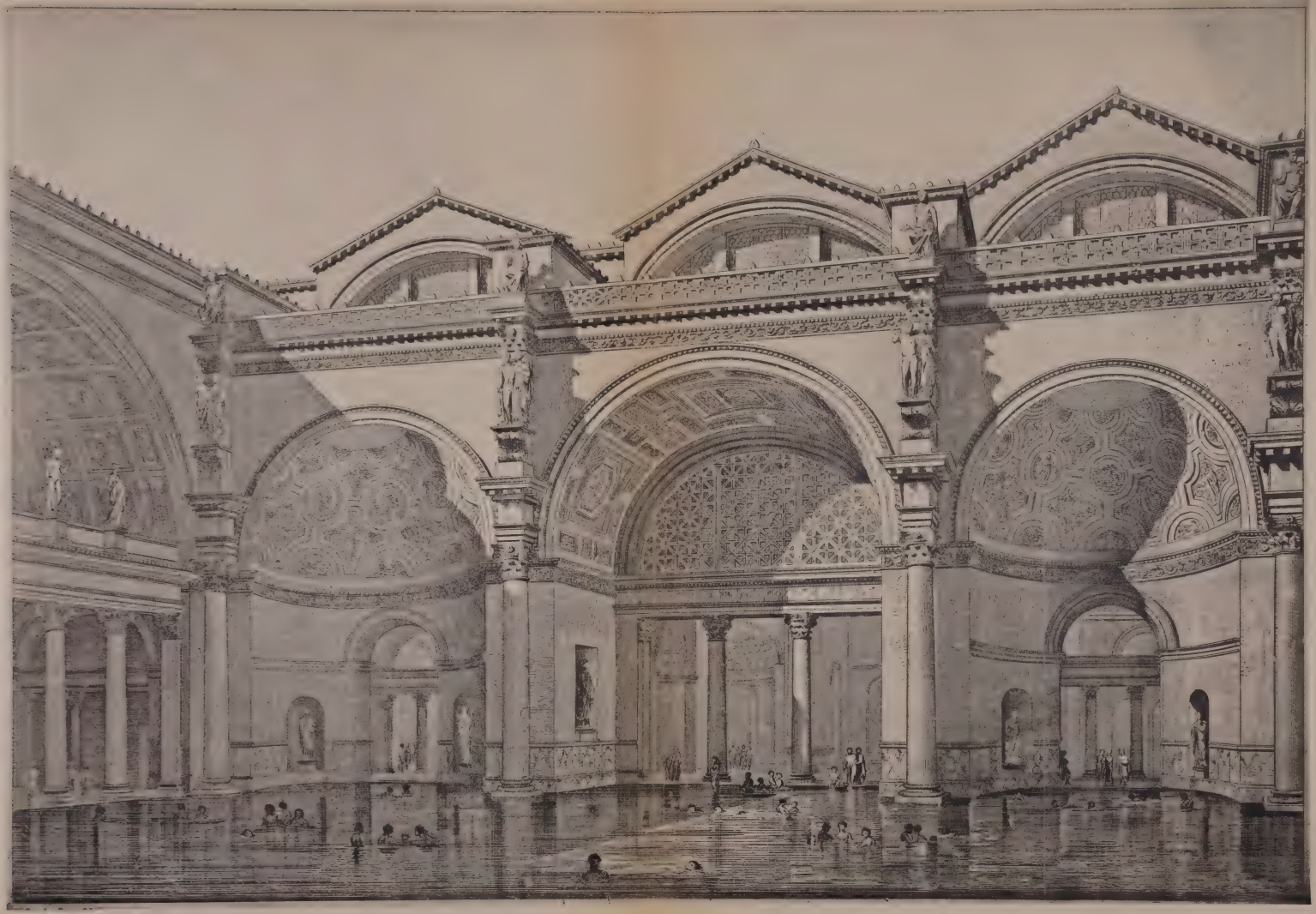
In our preceding Discourse, we treated of the vaulted structures of the Romans, that is to say, of structures which are the evident expression of the peculiarly Roman ideas of duration, possession, and power. But the genius of this people was manifested in buildings of quite a different character. At the close of the republic and at the beginning of the empire the Romans were not yet inspired by that feeling of incontestable superiority, which, at a later day, led them to adopt, in their civil constructions, certain uniform methods, which they imposed upon all nations without regard to local habits or foreign influences. The treatise of Vitruvius, though quite Roman in spirit, and though betraying a fondness for formulas, indicates still the existence of a certain liberty in the art of building, even under the empire, — a liberty which we should study with the greatest attention. In this connection let us glance at the plan and structure of the Roman basilica.

The name *basilica* is Greek, and signifies *the royal house*. It is probable that this word originally came from Asia, and that it is to the successors of Alexander, to the Macedonian kings established in the East, that we owe the structure thus designated. It was apparently their *divan*, the place where they administered justice. Vitruvius makes no distinction between the Greek and Roman basilica; but we have already had occasion to observe that Vitruvius does not appear to have had any exact idea of Greek architecture and of its details. He contents himself with remarking "that the basilica, annexed to the forum or market-place, should be situated in the warmest exposure, in order that the merchants who frequent it in the winter season may not be incommoded by the cold." He adds, "that its width should never be less than a third nor more than a half of its length, unless the nature of the site should impose a different proportion. Here Vitruvius, according to his custom, lays

down certain formulas of proportion, which were not generally followed and which he himself was the first to disregard in his own basilica of Fano. "If," says he again, "the site has greater length (that is, if the length is more than three times its width), the superfluous space should be occupied by *chalcidica* or subordinate apartments annexed to the extremities, as has been done at the basilica of Julia Aquiliana; the columns of the basilica should be as high as the portico (or aisle) is wide, and the width of this should be a third of the space in the midst (the nave); the columns of the upper part must be smaller than those of the lower. It is proper to give to the screen or *pluteus*, erected between the upper columns, a quarter less than the height of those columns, so that those who promenade in the upper galleries may not be seen by the merchants who congregate below. As for the architraves, friezes, and cornices, their proportions must be deduced from the columns, as we have indicated in the third book." * In translating this passage, I have kept as near as possible to the Latin text, which is clear and precise, but not very comprehensive. Indeed, Vitruvius does not tell us whether this monument is surrounded by a wall, if it is enclosed, or how it is covered; in these respects his text leaves us in a state of complete uncertainty. But when he describes the basilica of Fano, whose construction he himself directed, he mentions walls, and dwells at some length on the arrangement of the columns, on their proportions and the devices he employed in establishing the upper gallery; but, as I have already remarked, strangely enough, he disregarded, both in general conception and in details, all the rules he himself lays down.

His description of this basilica runs as follows, and it is well to observe that, in speaking of the covering (*testudo*), it is certain from the sequel that he referred, not to a vault of brick or rubble, but to a roof of timber: "The length of the vault between the columns is one hundred and twenty feet, its width sixty; the portico (or aisle), which surrounds the principal nave, is twenty feet wide between the columns and the walls; the columns, including their capitals, are, in all, fifty feet high, and are five feet in diameter; they have behind them pilasters, twenty feet high and two and a half feet wide. These sustain the beams on which are laid the floors of the galleries over the aisles. Above these pilasters are others, eighteen feet high, two feet wide and one thick, to receive the longitudinal

* Vitruvius, Book V.



THE BATHS OF ANTONINUS CARACALLA.

RESTORATION OF THE FRIGIDARIUM.

beams or lintels on which rest the upper ends of the rafters of the lean-to roof over the galleries, which roof is lower than the vault (the covering of the nave). The spaces between these longitudinal beams, and those resting on the columns higher up, are left open between the capitals to give light to the interior."

The conciseness of this last passage renders the text obscure. I shall presently endeavor to explain the arrangement to which he refers.

"On each of the two short sides of the basilica are four columns; on the long side towards the forum there are eight, including in all cases the columns in the corners; but on the opposite long side, looking towards the forum and the temple of Jupiter, there are but six, the two in the middle being omitted in order to leave open the view of the entrance hall (*pronaos*) of the temple of Augustus, which is adjacent to that side. In the temple of Augustus is the tribunal in the form of the arc of a circle fifteen feet deep and forty-six wide. This tribunal is so placed in order that the merchants, who throng the basilica, may not interfere with the litigants in the presence of the magistrates. Upon the columns is laid a wooden architrave made of three beams two feet thick, stretching all around the enclosure to the aforesaid opening, and there returning against the wall ends of the pronaos so as to rest upon the antæ or pilasters on either side. On these architraves and in the axis of each column are laid blocks three feet high and four feet square, on which rest wall-plates carefully joined and made of beams two feet thick, sustaining the ends of the tie-beams and principal rafters. On these is laid the roof of the basilica and of the pronaos, on the outside forming the covering of the structure, and on the inside the vault or ceiling. This method of construction spares much labor and expense, for it dispenses with all the features of the entablature above the architrave as well as the upper order of columns with their pilasters. This single order of columns, moreover, directly supporting the roof, adds much to the majesty and dignity of the whole structure."

Vitruvius, naturally enough, maintains that his work is good, and, indeed, he seems to me to display excellent judgment. At all events, he illustrates sufficiently well that the ancients, in their architectural compositions, possessed that quality of freedom from academical restraints which is a distinguishing attribute of all good epochs of

art. A half-century ago Vitruvius, judged by the rules of architecture as then understood, would not have obtained even a notice in the school of fine arts for his design of the basilica of Fano; nay, he would have been ruled out of the competition; he would have been put back to the lowest seats to learn Roman architecture according to Vignola or Palladio! What heresy, what disregard of all established rules, not to place a complete entablature on his columns! to surmount their capitals with wooden lintels and props bearing a wooden roof! to build pilasters against the backs of the columns! Twenty-five years ago the basilica of Fano would have passed as the work of the Romantic school; and I think I remember that when there happened to be occasion to mention this edifice, professors would drop the subject and sigh as one might do when contemplating the sad errors into which men of the greatest genius sometimes fall. But what are we to do when we find that the only special author left us by antiquity, in the edifice which he himself constructed and the only one of which he left a description, abandoned the rules which he himself had laid down, and which afterward were so carefully transcribed in the books of the Renaissance architects, who, in their turn, neglected to observe them in practice? Does it result from this that architecture is an art whose forms are arbitrary but whose principles are invariable? Have we been on the wrong track for the last two centuries in adopting certain forms as invariable, as the final expression of correct taste, and in neglecting to concern ourselves about those principles to which the ancients themselves, from whom we have taken the forms, attached the greatest importance? And if this is the case, were not the architects of the Middle Ages, who were so faithful to their principles and so free in their adoption of forms, much nearer the spirit of antiquity than was the great classic century of the Renaissance? What a shock is this to all the ideas we have inherited from that period! And how unfortunate for some modern architects that they cannot claim for such venerable blunders the same right of prescription as gives title to property of doubtful tenure by virtue of long usage!

There are certain points in the description by Vitruvius of his basilica of Fano which merit the serious study of all those who do not hold absolutely to rules laid down by theorists but disregarded by practitioners. These are: the position of the chalcidicum or tribunal on one of the long sides; the single interior order divided by

the gallery floor; the absence of a complete entablature; the support of the gallery floor and its roof by pilasters against the backs of the columns; the manner in which the capitals rise above the gallery roof, and, allowing the light to enter between them, support a wooden architrave with dies of stone and all the timbers of an open roof. And yet Vitruvius, *rationalist* that he is, and in the face of all our classical rules, says that he adopted these dispositions to spare trouble and expense! Writing in the midst of the very reign of Augustus, he enters a candid protest against the Roman cornice. The doctrines held sacred in our classical schools of art were, therefore, not in vogue in the classical era. Architecture still preserved that liberty, that adaptability to all the uses of life, which, among the Greeks and in the last days of the Roman republic, were its loveliest features; it was still in the hands of artists, and had not yet replaced art by formulas, or become a mere appendage to the great administrative and political machine of the Roman empire.

Plate VIII., which gives the plan, and Plate IX., which gives the section of the basilica of Fano, are drawn faithfully according to the definite descriptions and dimensions left us by its author.

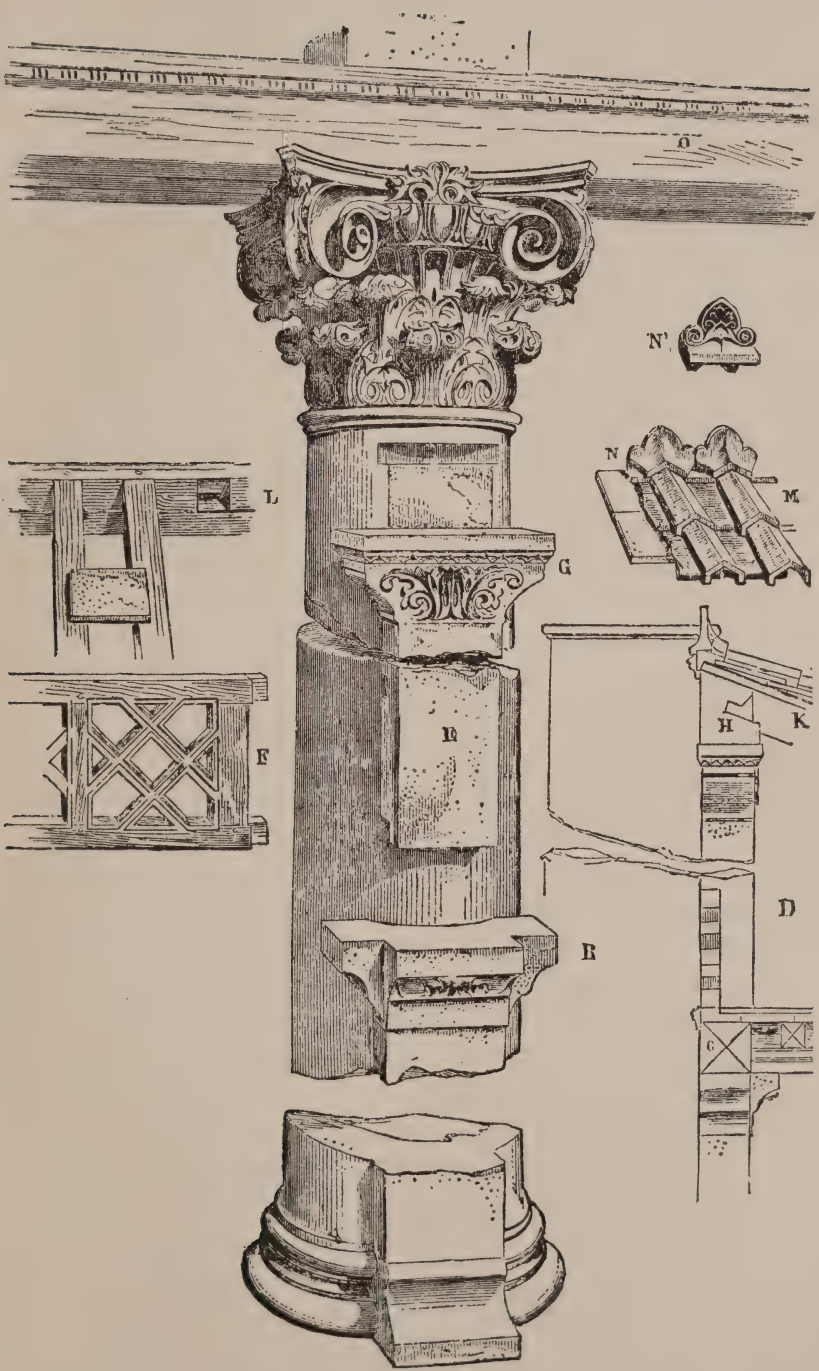
In order that the arrangement of the pilasters against the backs of the columns may be understood, the reader is referred to Fig. 18.

At A is the base, which was not yet laid upon that square plinth, which, at a later period, was always used in the Ionic, Corinthian, and composite orders of the Romans. At B is the capital of the pilaster supporting the floor of the gallery, with the notch above to receive the longitudinal beam C, indicated in the section D. E is the upper pilaster, and on its sides are the mortise-holes to receive the tenons of the wooden balustrade F, which takes the place of the stone screen, which was used in basilicas where one order was superimposed on another. At G is the capital of the upper pilaster, destined to support the wooden plate or purlin H (see section D), which acts as a ridge for the rafters of the lean-to roof K over the gallery. The shaft of the column under the capital is grooved to allow this purlin to pass and to cover the ridge-tiles of terra-cotta to prevent leakage. L represents the purlin with its rafters, covered at first with flat square bricks and then with tiles, M, with their cove-joints and ridge-tiles, the latter, N N′, decorated on the sides facing the interior. The capital, B, is copied from one of the beautiful capitals of the age of Augustus deposited in the museum of

St. John Lateran. O is the triple wooden architrave which it supports.

All this is so clear in the text, that but little effort is needed to explain it by figures. With regard to the system of carpentry adopted in the roof, it must be admitted that Vitruvius is less explicit, and unfortunately there exist no antique specimens which we can use as examples. Moreover, the disposition of the plan is such as singularly to complicate the construction. Vitruvius takes care to inform us that he suppressed two columns in front of the pronaos or entrance of the temple of Augustus, in which the tribunal was placed, and that from each of the columns left on either side he carried the wooden architrave at right angles against the wall so as to rest on the opposite pilaster or anta of the pronaos. He further tells us that the principal nave returns at right angles, like a transept, against the entrance of the temple, and that his system of carpentry is strengthened by tie-beams, is panelled on the inside, and has two water-sheds or slopes on the outside which are continued at right angles over the pronaos. The basilica is very wide (fifty-eight feet five inches, English measure), and its roof would therefore require a truss at least over each opposite pair of columns across the nave; but diagonal trusses over the open space in front of the pronaos would be inadmissible, not only on account of their disagreeable appearance, but by reason of their want of solidity. Now the plan traced by Vitruvius is such as, according to the ancient custom of framing, would admit of but one system in the support of the roof, and this, as I have suggested, must consist of a series of trusses extending across the building between the opposite columns of the nave, the ends of the two trusses opposite the pronaos resting on the tie-beams of a double truss perpendicular to the first and bearing the same relation to the pronaos or transept as the other trusses do to the nave. These tie-beams should be prolongations of the wall-plates, which rest on the blocks over the columns which flank the pronaos on either side, and should be firmly suspended to the principal rafters of the longitudinal truss by hanging ties and strongly supported by corbels. I have endeavored to illustrate this singular construction in Plate X., conforming as far as possible to the principles of carpentry indicated in the antique paintings of Pompeii and in the bas-reliefs of Trajan's column. But besides these, the systems of timber construction used by the mediæval builders are a precious assistance to

Fig. 18.



those who would understand the systems adopted by the Romans. Of all the methods of construction, framing certainly has adhered most closely to ancient traditions, for even in the most barbarous times it was used in the West, and the Gauls, even in the time of Cæsar, were regarded as very skilful in this art. It must be understood that such open timber roofs as are indicated in Plate X. were covered partly by panelled work, according to the Roman habit, as is indicated in the drawing. It is probable that the ends of the nave were not covered by hip roofs, which would have complicated the construction, and would not have been according to antique usage, but by open wooden gables, as indicated in Plates IX. and X.

From the remains of the ancient basilicas, and from the description of the edifice at Fano, we are justified in drawing another proof of the great liberty enjoyed by architects in the time of Augustus in the construction of these public monuments.

The Greek monuments of the basilica type, though few in number, present certain singular dispositions which were not imitated by the Romans. Thus, the basilica of Pæstum and that of Thoricus have a spine of columns on the main axis, affording two central aisles or interior ambulatories besides the outer aisles. These edifices resemble rather open markets than the closed basilicas of the Romans, from which they also differed in having no place for the tribunal. Now the Romans under the empire hastened to give their basilicas the same degree of magnificence that distinguished all their other public monuments. The basilica situated on the forum of Trajan, built at Rome by a celebrated architect, Apollodorus of Damas, was a monument as remarkable for its great size as for the richness of its decorations. This basilica, whose remains may still be seen, and whose exterior façades are given to us on certain ancient medals, was composed of a nave and two aisles on each side, bearing the galleries on the first story. The tribunal was a vast semicircle whose diameter was equal to the whole width of the nave and aisles together, and the aisles as well as the galleries were continued in front of it. A single entrance, with a portico and vestibule, was opened at the opposite extremity to the tribunal, and three entrances on the south opened on the forum of Trajan. In a little court extending along the face of the basilica opposite the forum was the celebrated column erected by the senate and the people of Rome in honor of that prince. Upon this court opened two libraries for

Greek and Latin books, communicating with the basilica by two doors at either extremity of the north wall. The brick walls of the basilica were covered, at least in their lower parts, with a thick facing of white marble. The interior columns were of gray granite, with Corinthian capitals and bases of white marble. The ceiling was composed of plates of gilded bronze. The three principal southern porches on the forum were, according to ancient medals, crowned by four-horse chariots and statues. The pavement, still visible, was composed of great slabs of antique yellow and violet marble. It is certain that this structure was not vaulted, but was covered with a wooden roof.

It is a question whether the tribunal was covered, and if by a vault, composed of the quarter of a hollow sphere, how this vault accommodated itself to the galleries and the walls which they sustained. The commonly received forms of the basilica seem to conflict with that great half-circle which occupied almost the entire width of the nave and aisles. It does not seem possible to construct such an arrangement, unless the interval between the naves and the tribunal was open to the sky. However we may suppose the basilica and its wooden roof were constructed, we can form no plausible theory regarding the manner in which the latter could abut against the vault over the tribunal.

As I desire to abstain from mere hypotheses, I do not propose to discuss this question, and I only cite this example to show how, in certain cases, the Romans varied their conceptions, without failing to observe meanwhile the general conditions of the problem as imposed by their social state. An explanation of the difficulties to which we have referred concerning the structure of the basilica of the forum of Trajan can perhaps be found by comparing the Persian palaces, which always have at one end of their porticoed courts a semicircular projection relatively of great dimensions, and covered by a vault composed of the quarter of a sphere. It is well known that the modern East has preserved many Roman traditions in its structures; and even at the present day many edifices, like mosques, or bazaars, or the Palais-Royal at Paris, resemble the Roman basilicas, not only in the multiplicity of the uses to which they are devoted, but in their interior richness. Such edifices are apt to owe their existence to the vanity of sovereigns who have desired to attach their names to durable and splendid public works designed to attract

crowds and to bring the people together. Certainly this class of buildings did not first arise in a republic. Whatever was the nature of the Greek basilica, it is essential to establish a distinction between this and that of the Romans. I have already remarked that, as regards architectural composition, the Romans really took from the Greeks only that of their temples; but all other buildings belonging to the public service, all civil structures, originated with them; they created and modified their plans according to their needs, and their basilicas, being destined for different uses and these uses severally varying in importance according to time and place, were subject to a corresponding variety of treatment. But we must not lose sight of the fact that the essential architectural characteristics, the types of the public monuments of the empire, remained unchanged from the time of Augustus. Yet a principle, however absolute it may be, must, in application, assume various forms, as was afterwards signally proved in the cathedrals of the Middle Ages.

But our art is concerned not only with public works. If we have but a vague idea of the domestic architecture of the Greeks, that of the Romans is sufficiently familiar to us to prove that here also there is a wide field open for our instruction.

It cannot be too often repeated that, during all epochs of known history, an intimate relation has existed between the manners, customs, laws, and religion of nations, and their arts. Posterity must judge whether our epoch is an exception to this rule; but it is certain that, during that period of Roman antiquity, for example, comprised between the end of the republic and the fall of the empire, architecture closely followed the various movements of Roman society. In the Fourth Discourse we dwelt on the methods pursued by architects during the imperial period, because it was only at that time that the arts of Rome were truly Roman; yet how interesting is the study of the relations between the national arts and manners toward the end of the republic! How charming that transitional architecture, which, no longer Greek, was hardly yet imperial! Fortunate era for the arts, when a Cicero, a Lucullus, a Servius Claudius, a Sallust, lived to make it illustrious! Without doubt, the house of Cicero at Tusculum was but a modest dwelling compared with the magnificent villas of the emperors and their favorites; yet what a delicious perfume of art lingers around those beloved walls of the last citizen of the republic! What treasures of elegance, what charming

ideas of household comforts, are suggested in those letters of his, in which, with refined taste, he expressed his interest regarding the embellishment of his villa! He concerned himself little about costly marbles and paintings, nor did he speak of his country-seat with the ostentation of the man of wealth who desires luxury only that he may outshine his neighbors; but he had much to say of his homelike comforts, of the advantages of his situation, and of the collections of objects of art which he had arranged about him with affectionate zeal. Though quite as much a Greek as a Roman, he did not argue about forms or styles of art; yet it is evident that he had a nice appreciation. As an evidence of the confidence he reposed in his architect and the respect he had for the decisions of the artist to whom he confided the building of his villa, it is interesting to read what he said in one of his friendly letters to Atticus: "Now, if my friends fancy that my windows are too narrow, Cyrus, my architect, is ready to meet the objection, and will at once explain how large windows opening on a garden do not offer to the eye so agreeable a perspective as narrower windows. You can imagine his argument: Let A, he will say, be the eye which sees, B and C the object seen, D and E the rays which pass from the eye to the object, and so on." This unfinished demonstration is quite Greek in character, and it is evident that Cicero only repeated here the remark of his architect, who was probably a Greek, and whose argument seemed to have interested him but little. He added, further on, after an epigram addressed to the Epicureans (to which sect Atticus belonged): "If you find anything else in my house to criticise, I shall always be supplied with reasons quite as good to give you in reply, unless, indeed, I can remedy the difficulty at a small expense." It would not be easy to cite a passage explaining in a more natural way the character of the relations existing between the first Roman citizen of the republic, a man of pure taste and refined mind, and his architect. It is evident that the most polite Romans of that time were passionately fond of the arts; but as they were wise enough to understand that in this respect the Greeks were their masters, they believed that they could not do better than refer all questions on the subject to them. Thus Cicero wrote to his friend, who was living in Greece, to buy some statues for him there, and to take care that they arrived in good condition.

It is, indeed, unfortunate that we have so few remains left from

this interesting epoch of transition, when the Greek arts were associated with the daily routine of Roman life. The architectural works of this period must have been distinguished for that elegance which is so much better than richness, and for that freedom of design of which we find some traces in the description of the basilica of Fano, but which, under the emperors, disappeared entirely. Such would be the natural architectural expression of the state of society at the close of the republic, — a society full of contrasts, very civilized, very elegant, and still retaining that moral independence of which we can find no evidence in the structures of a later age. In the absence of authentic architectural remains belonging to a period whose social state so nearly resembled our own, but whose intellectual condition, it must be admitted, was superior, the careful study of that social state would be fruitful in suggestions and resources for the architect. A comparison of our own national character and history with those of the last days of the Roman republic, together with a study of the few architectural fragments which remain to us from that period, would perhaps develop the means of rescuing our arts from the mire in which they seem to be stuck. But, to arrive at such a result, we must have the courage to admit that our present methods of architectural education are incomplete, that the learned antiquaries who talk or write about architecture are not architects, and that the architects themselves are not sufficiently familiar with the history and customs of antiquity or of the Middle Ages. If we knew what we are and what we have a right to demand of the times in which we live, we might perhaps develop an art of our own.

The great advantage to be obtained by the student of architecture from the study of antiquity is the elevation of his mind. In order to obtain this result his observation, unlike that of his predecessors for the last two hundred years, must extend beneath the mere superficial forms of the art and penetrate to those things of which they are but the natural expression. He must mix with Grecian and Roman society, Roman especially, so grand, so solidly established, notwithstanding its manifest errors and abuses; he must not only enter the Roman house, but he must know him who inhabits it, must appreciate his tastes and live his life, so that he may comprehend the perfect harmony existing between the man and his habitation. At the present day, when such harmony does not exist, when all the members of society make it their business to move out of their respective

spheres, and to place their real and their apparent existence in contradiction, the task of the architect becomes more and more difficult; for it does not belong to him to set himself up as a moralist to preach social reform, and, still less, to be the mere agent of a sort of sumptuary police. Yet the elevation of the architectural character, the exact knowledge of civilized societies, the good examples and good arguments supplied to the architect out of this knowledge, would have more influence in giving to him the professional authority which he should exercise than at first seems credible; it is not by passing a few years at Rome or Athens, by restoring for the thousandth time the theatre of Marcellus, the portico of Octavius or the Parthenon, it is not by elaborating in his room at the French Academy of Rome an india-ink drawing of the end of an entablature or a capital, that the architectural student, returned to France, is enabled to exercise any influence over the mind of a capricious or indecisive client, and to rest his advice upon such simple and solid reasons, that the client must in the end be persuaded and submit.

In glancing at the public monuments of the Romans, we have been enabled to appreciate, without prejudice in respect to form or style, how largely and scrupulously their great architectural requirements were met; how the thing containing explained the thing contained; how the methods and means of construction in every case were exactly such as the state of society at the time and place was best capable of supplying; how, in the best periods, luxury and richness of decoration never fell into mere fastidiousness, but, on the contrary, participated in that truly Roman grandeur which was without pompousness or affectation. But when we descend to examine into the private life of the Roman citizen and see him in his home, we behold a singular contrast. If he was rich enough to build a theatre, a portico, or public baths, he adopted the official architecture, as it were, — that which belonged to the public; but if he built for himself or his family, he never sought to surprise or dazzle the multitude by any outside show, but contented himself with the indulgence of his personal tastes within, and built an agreeable home for himself and his dependants. Such, at least, was the custom of the Roman citizen at the close of the republic. At a later day, vanity and ostentation modified the tendency of the Roman in this respect; but at this time antique society was evidently declining to

its fall. The private houses of Pompeii, from the richest and greatest to the most humble, all preserved an exterior appearance of uniform simplicity, and all used the same methods of construction and the same materials. These peculiarities we find still in vogue in all the cities of the East. If the Roman citizen was wealthy and was enabled to construct apartments furnished with statues and paintings, he took care to keep his magnificence for his own use, and avoided exciting the envy of those outside of his house. These were the natural habits of a republic; and a citizen who may have spent many millions of sesterces from his private purse to build an aqueduct or a circus for his native city, would inhabit a mansion which, to all external appearances, was no better than that of his poor neighbor. It seems likely that this custom of concealing from the public the interior richness of private houses contributed to develop among the Romans that love for their villas, where, at least, they could unrestrainedly indulge in their taste for luxury and comfort without fear of the criticisms of the public or their neighbors. We find indications of the existence of this envious feeling at Rome, when the party of Clodius, having successfully intrigued to banish Cicero from the city, sacked and destroyed all his private houses as soon as he had gone. It was in view of such acts of violence from the mob, that the wealthy Romans, establishing their households in a city so often disturbed by factions, carefully concealed from the outer world their interior pomp and luxury. Among the Romans, therefore, the requirements of the private house differed from those of the public building, not only in regard to the necessary variations in the arrangement and size of rooms, etc., but in a respect with which art was more particularly concerned. If the Roman considered that he could never do too much to emphasize the exterior grandeur and importance of the public monument, he found it necessary to disguise the splendors of his household from the passers-by. This enables us to comprehend the essential difference between the appearance of a Roman and that of a modern city, and how, in the former, the apparent simplicity of the habitations exaggerated by contrast the magnificence of the forums, the temples, and the theatres. Evidently such contrasts, while increasing the picturesqueness of a city, had their influence on the minds of its inhabitants. The sense of sight has its habits like the other senses, and it is reasonable to assume that the effect produced by public

edifices of great exterior magnificence, situated in the midst of the simple lines and the grave, close walls of uniform houses, was of a nature to elevate the mind to a better appreciation of works of art.

The Romans spent the greater part of their time in public. In the morning the considerable citizens received their dependants, who at that time were accustomed to attend the levee of their patron; in the hall (*atrium*) of his house. They formed his suite when he walked abroad; for among the patricians of the republic, to be accompanied by a great number of retainers was a means of obtaining influence in public affairs. Thus he proceeded to the forum, or promenaded under some one of those vast porticos which, at various parts of the city, served as exchanges and places of rendezvous; here he gave himself up to those public occupations which were almost incessant in the life of the Roman citizen. Then, after attending the baths or the sports of the circus or amphitheatre, in the evening he would retire to his home. At this hour the house was closed to all but his most intimate friends, for whom the interior luxury of the establishment was reserved. The apartments of the Roman house were always small, and opened on courts and interior porticos, so that no prying eye from without could penetrate the privacy of the household. The architecture was exactly fitted to these conditions. It cannot be a matter of surprise that the men, who, at Rome, by their birth, fortune, or position, were obliged to participate in all the intrigues of parties striving for power, often yearned to enjoy the tranquillity of country life. Indeed, the love for the country was a particular Roman trait; it was general in the time of the republic, and under the early empire it became almost a passion. No notable citizen of Rome could escape, while in public, from the importunities of his friends, his dependants, his partisans, or his rivals; he could not live an indifferent spectator in the midst of the perpetual movement of factions; if he would enjoy repose, he was obliged to shut himself up in his house. Men like Cicero, for example, whose minds and lives were occupied by those two conflicting passions, love of study and love of power, from time to time felt the necessity of obtaining mental repose by flying from the turmoil and bustle of Rome to the grateful tranquillity and independence of their *villas;* here it is, therefore, that the true character of the domestic architecture of the Romans must be sought.

I do not understand how it is that the idea of symmetry, ever since

the sixteenth century, has become so closely associated with the domestic architecture of the classic period, for I have been able to find no trace of it either in the houses themselves or in the ancient writings which refer to them. At Pompeii there is not a single mansion whose plan or elevations have been submitted to its rules. Cicero and Pliny have much to say, in their letters, about the aspect and particular disposition of every apartment of their country-seats; but of symmetry not a word. In fact, these houses were an accumulation of rooms, porticos, chambers, galleries, etc., whose relative positions and character were regulated by considerations of light, wind, sun, shade, and prospect, all of which exclude symmetry. The detailed description by Pliny of his Laurentine villa, in his letter to his friend Gallus, is, in this respect, extremely curious. This letter is thoroughly imbued with the true practical spirit of the Roman: of decoration, mosaics, marbles, or paintings he had not a word to say; but he everywhere insisted on the prospect, the aspect of the different apartments with regard to the points of the compass, their peculiar arrangement, the coolness of some, the soft temperature of others, the various views which he enjoyed seaward and landward, the sweet tranquillity of the rooms set aside for study and meditation, the accommodation and neatness of his servants, his waters and his gardens. He spoke neither of orders, wainscots, nor cornices. No line of this charming letter betrays the slightest spark of vanity. He loved his country-seat, he had arranged it according to his taste and was pleased with it; it must have been, in respect to elegance and refinement, all that might be expected from and befitting a Roman gentleman and scholar and a man of the world; yet when at home or in his communications with his friend he showed no trace of foolish pride. If it is proper for us to borrow anything from the Romans, should it not be this wholesome spirit, this true elegance, this judicious love of moral and physical well-being, rather than those conventional formulas of style made fashionable in the puffed-up and pompous reign of Louis XIV., and since then accepted as the regenerated traditions of antiquity? Those who really love and admire antiquity, who seize with avidity the least expressions of polite Roman society, who appreciate its refinement and its strong common-sense, must indignantly repel these false interpretations of its arts. For my own part, I confess that I do; the adulterated antiquity in which we are steeped offends me, as would a head of

caricature by Coustou or Coysevox on the torso of the Venus of Milo. Is it not indeed a dangerous error to attribute to ancient art such ridiculous and absolute laws as those of symmetry and of the indiscriminate application of fixed academical orders, the shelter and protection of modern ignorance and mediocrity, whereas, in the works of antiquity, there is one dominating principle, the frank and honest acknowledgment of practical requirements in each case, varied in the expression by the wise liberty of common-sense and good taste, or, in short, the habit of reasoning applied to the sentiment of art?

I believe that Horace would have made a wry face at the château of Versailles, if told that these immense symmetrical barracks, (and why symmetrical?) pierced with ranges of windows and decorated with columns and pilasters, were the villa of a sovereign. We admire and study the antique; you may admire, and study, if you wish, the architecture of the great Louis; but do not confound works which are not only dissimilar but diametrically opposed both in principle and in expression; above all, do not pretend that the works of that reign were inspired by those of antiquity. You might as well undertake to prove that Puget sought his types in Ægina. It was no crime in the architects of Louis XIV., that they believed and honestly said that they followed in the traces of the ancients, for we owe respect even to the illusions of the past; but we have no right to go on repeating such an absurdity, by hereditary transmission, in our words and works.

The consul Pliny had not only his villa at Ostium on the seashore, but a very beautiful country-seat in Tuscany, surrounded by delicious gardens; he described it to his friend Apollinarius. Each of these two establishments had its peculiarities, differing from the other by reason of the different climate, site, aspect, views, waters, and habits of the country. Yet, whether on the shore of Ostium or on the slope of the Tuscan Apennines, it was still a Roman house, with its numerous offices and dependencies, its porches, its eastern rooms, its baths, studies, guest-chambers, playground, gymnasium, saloons, summer and winter apartments, and lodgings for dependants and slaves. All these different rooms were placed, not with a view of carrying out an academic plan, but according to the taste of the owner and to accommodate his daily habits.

We have seen the Roman, in his public monuments, submitting to the laws of symmetry; here he maintained his dignity, he was

a magistrate, he built for the public, and, in doing so, recognized that symmetry was a powerful agent to display his grandeur to the multitude; but, at home, he laid aside his official character, he built to please himself. In these apartments he courted the sun, in those he studiously avoided it; he availed himself of every advantage of his site; he required comfort, and never allowed himself to be guided by vanity like that of the modern lord of the manor, whose first wish is that his mansion shall represent a correct architectural composition, even if to attain this end he must sacrifice his domestic ease. The Roman in his country-seat, with a rare sagacity and a delicate taste, yielded everything to the accommodation of his material and intellectual needs; he required provision for the bodily health and comfort of himself and family; and he needed a library, quiet apartments for study, such as would give him facilities for that recuperation essential to every mind which would be kept whole and sound; he must have his gymnasium for the mind as well as for the body. Interior luxury and splendor had their place in his house, but he never sacrificed to these the arrangements necessary to his comfort. In short, he knew how to be a private citizen as he knew how to be a public man; rarely suffering himself to be led astray either by an unreasonable love of luxury, or by an undue exercise of power.

I ask, then, nothing better than that we shall be Romans, — not Romans with periwigs and high-heeled shoes in the style of Louis XIV.; but Romans, in our knowledge of the true requirements of life, in our plain and straightforward good sense, in our practical philosophy, in our way of loving the arts like sensible men rather than like amateurs or dilettanti, in avoiding such follies as ranging columns in file without knowing why, and lodging ourselves in palaces magnificent for those without, but uncomfortable, sombre, ridiculous, and full of hidden miseries for those within. It must be confessed that the château and the manor-house of the Middle Ages resemble the villa and the Roman house much more closely than do the mansions of the last two centuries, for the men who built those châteaux and manor-houses first required to be lodged agreeably, wholesomely, and strongly, and troubled themselves little whether one wing of their house was shorter or longer than the other, or whether the flanking range of offices on one side was higher or lower than that on the other.

Let us endeavor to form an idea of that residence so dear to Pliny the consul, his Laurentine villa. It was but seventeen miles from Rome, on the sea-shore, near the little town of Latium. "It is large enough," said the consul to his friend Gallus, "to afford all desirable accommodation, without being extensive. First, there is a vestibule (*atrium*), simple but not mean; thence you proceed to a small but pleasant court, shaped like the letter D, surrounded by a portico or gallery, which, as it is covered with a transparent roof and above that is protected by the projection of the main roofs, affords a commodious retreat in bad weather. From this second court you enter a third, from which opens the banqueting-room, which extends out over the sea in such a manner that when the African wind (the southwest) blows, the base of its walls is gently lapped by the waves. This room is pierced on all sides with doors, and with windows as large as doors, so that on the three outer sides you have as many views of the sea, and on the inner side you command a vista of the principal court with its portico, the little round court, then the vestibule, and beyond, in the distance, the woods and mountains. On the left of this room is a large retired apartment, and beyond this another smaller one so disposed as to receive light from the east on one side and from the west on the other. The latter side commands a quiet view of the sea, which at this point is farther off than it is as seen from the banqueting-room. Outside, between the banqueting-room and the apartments I have just described, the building forms a re-entering angle, which, as it retains and increases the heat of the sun, is very agreeable in winter, and serves as a gymnasium for my people in that season. This place is protected from all winds except those which accompany mists and stormy weather. To the apartment of which I have just spoken is added another, which projects in the form of the segment of a circle in such a manner that the sun shines through its windows all day long. In this room, in the thickness of the walls, are cases forming a sort of library, filled with choice books, — an unfailing source of recreation and instruction. A bed-chamber is separated from this apartment by a passage wainscoted with wood and so arranged as to communicate the heat from one room to the other. All the rest of the rooms on this side are reserved for the use of my freedmen and slaves, but they are neat enough for guests."

Pliny then goes on to describe in detail the range of apartments

on the other side of his villa, including a small dining-room, and beyond, baths, with the usual arrangements of a frigidarium, a furnace, a room reserved for perfumes, a warm chamber, and a hot bath, the latter having a view towards the sea. Then he speaks of a tennis court (*spheristerium*) not far off from the baths, having an exposure towards the sun in the afternoon, when the Romans engaged in their games and exercises, and of two pavilions or casinos, close by this court, of two stories each, with flat roofs, commanding a fine extent of the sea with the villas along its shores, and also of his own garden, planted with box, rosemary, fig-trees, mulberries, and crossed by arbors of vine. On this garden, according to his description, opened another dining-room, with adjoining apartments, and a long gallery (*cryptoporticus*), pierced with windows on two sides, towards the sea and the gardens. Then a playground (*xystum*) "perfumed with violets" appeared to have been arranged against this saloon in such a manner as to protect it from the cold winds. In a very retired position at the end of this saloon or gallery was built another range of apartments, the favorite abode of Pliny; he describes minutely all these rooms, and dwells at length on their advantages of aspect and view; they included sleeping-chambers, a room warmed by a stove, and a study, all in wholesome shade or warm sunshine as circumstances required.

In fact, Pliny was not so foolish as to trouble himself about symmetry in all this, and to inconvenience himself in order to exhibit regular façades to the passers-by. All the buildings of the villa were placed where they belonged, they were built of convenient size and arranged some at the end of others, some projecting, others in retreat, some small and low, others large and high; some were vaulted, some wainscoted, some were pierced with many windows, and others had none at all; but in all cases the considerations of aspect and view subordinated the plan, as the interior necessities and conveniences controlled the elevations. Such villas were but a collection of a quantity of buildings joined together by partition walls, having each its own roof, its windows large or small as needed, with such exterior and interior decoration as was proper in each case. In all this, as we have said, there was a strong contrast to the regular plans of public establishments, for the Romans had too much good sense to give to domestic architecture the character of public architecture. They aimed to have in their

country-seats, on a reduced scale, all the accommodations that could be obtained in a town of the time of the republic. Their seats thus resembled well-ordered villages. If the classic writers did not demonstrate the truth of our opinion in this respect, it needs but a glance at the antique paintings of landscape which still exist in considerable numbers. In these may be seen picturesque groups of irregular buildings, united by porticos or open galleries, each building with its distinct roof, and each either boldly detached and facing all sides as if to enjoy the sun and the view, or nestling under the shade of trees and hills. Our old abbeys, our mediæval châteaux and manor-houses, exactly conform to these conditions, as we shall presently take occasion to explain; and they therefore, as I have said, seem to harmonize with classic traditions much more nearly than do our great regular structures of the last few centuries, unless, indeed, architecture is really but the application of an order or the use of certain mouldings, instead of the studied and economical distribution of a plan, the true expression of the requirements, usages, and manners of a civilized people.

In building his country-house, the Roman, with sound, practical common-sense, undertook to surround himself with everything necessary for his bodily and mental comfort; and, to attain this end, he was content to make use of the resources conveniently at his disposal. If, at Rome, the houses were five stories high, in the country, where land was less valuable, they were spread over the ground, and rarely occupied more than one floor. Indeed, why should people roost over each other, when there is ample space on all sides? Do we retire to the country to mount stairs all day long, or to have conveniences for promenading and enjoying repose and silence along an extended surface of land? What charm is there in a country-house if one must be shut up in a great stone box, in which, as in the city, we cannot get away from the noise of people ascending and descending at the tinkling of bells, the clatter of opening and shutting doors, the steps of guests in their apartments, the orders of the housekeeper, the cries of children, and all that incessant household movement which distracts the mind and robs us of the much-desired repose? I repeat, if we would have a true Renaissance, if we must resemble the Romans, let us, before borrowing from them a few scraps of architectural decoration, to which they attached but a very slight importance, imitate them in their wise

application of art to the requirements and customs of life. Let us cease to embarrass ourselves with those artificial restraints which we call architecture; let art adorn and not govern our households.

The common-sense of the Roman appeared not less in his way of constructing his houses and villas than in the way in which he decorated and furnished them. Rubble, concrete, and brick were the usual building materials; and, if he had the means of indulging in such luxuries, a few marble columns for the porticos, wainscotings of the same material for those parts of the interior walls exposed to dampness, plaster and stucco well made and painted everywhere, with lintels and ceilings of wood. If the Romans built their public edifices to last for centuries, they constructed their dwellings with a view to the probability that domestic changes would require them to be renewed perhaps every fifty years. Most of the dwellings which have been disinterred at Pompeii are very lightly built; the remains of ancient villas, so numerous in the neighborhood of Rome, prove that they were constructed in the simplest and most economical manner. Their whole decoration consisted in fresco-paintings, pavements, and wainscotings of marble, and a quantity of objects independent of construction, such as vases, statues, marble fountains, and furniture in bronze or precious woods incrusted with ivory and metals. The Roman evidently found no pleasure in piling up enormous masses of stone for his habitation; he preferred to employ his resources in so arranging the various apartments of his villa as to obtain the best view or the best position with regard to the points of the compass for each, and to furnish them with beautiful marbles, and with elegant or curious works, such as mosaics, paintings, Greek statues, and rare manuscripts. He understood how to obtain in his house coolness in summer and warmth in winter; he had water everywhere, and accommodations for all the functions and duties of life; he wished his family, that is to say, his relatives, his freedmen, and slaves, to be as comfortable as himself, and that order should reign everywhere in his household, not by a constraint which would be insupportable both to him who imposed and to those who submitted to it, but by a wise provision for every necessity and every domestic requirement. His slaves were certainly better lodged and treated than are our servants; they had their separate building, their baths, and their rooms for exercise or amusement; without regard to their social state, these slaves were in reality more free, more happy, and

more comfortably and wholesomely provided for than are the domestics of any wealthy householder of the present day, though indeed it is true that the former had an intrinsic value, and that their master was interested in preserving them in health and strength.

We can now understand how men, habituated to this large, tranquil, and regular country life, would desire to avoid the restraints of a residence in the city as far as possible. Indeed, no Roman citizen, who could afford to build a villa, would live in Rome, unless compelled by circumstances; and even then he aimed to supply his palace within the walls with all the comforts of the villa, with every office, dependency, and convenience, which could minister to the luxury and indulgent ease of Roman life.

When we examine a plan of ancient Rome, on which appear the remains of the great public structures of that city, it is natural to inquire where were the private dwellings of its citizens, where did that great population live, who were wont to throng the Campus Martius, the circuses, and the amphitheatres. The public edifices, the imperial palaces, the porticos, the market-places, occupied at least two thirds of the space included within the walls. This is explained by the fact that the populace of Rome was sparse compared with that of our great modern cities, and was huddled together in many-storied houses, though the people spent the greater part of their time in the public places so magnificently provided for their amusement and accommodation. Rome, as the centre of the government of the then known world, necessarily included a prodigious quantity of public structures built on a colossal scale. In the absence of requisite space, under the emperors, immense edifices were destroyed to give place to new constructions; palaces and great establishments were constantly removed to build monuments better suited to the needs of the day. Never did a people demolish so extensively to rebuild. Under the Antonines, entire quarters were suppressed for the accommodation of immense works of public utility; and, moreover, even up to the end of the empire, there still existed, in many parts of the city, a great number of public and private gardens. Nothing in modern Europe can afford any idea of such a city. In the suburbs, within a circle of six or eight miles around its walls, arose a prodigious quantity of large and small villas, and, along the roads, many more vast public establishments, temples, tombs, inns, porticos for travellers; while through the midst of this mingled sea of dwellings, monuments, and

gardens stretched the long aqueducts from the mountains, pouring great lakes into the bosom of the metropolis. The remains of these extra-mural constructions are now buried under a barren soil, which cannot be turned over at any point without discovering, here a demolished wall and there the fragments of marble columns, and everywhere mosaics, pavements, basins, cellars, and, in short, all the ruined marks of a great city outside the limits of Rome.

At the close of the empire, Rome had not enough inhabitants to animate and people its public and private buildings. Indeed, strictly speaking, there was no longer a Roman people. So great, however, had been their expansive power, that many wealthy citizens of Rome lived in their villas in Gaul, Africa, the Peloponnesus, or Asia, while at the gates of the capital a few slaves and ruined husbandmen pillaged the abandoned country-seats. Meanwhile, at distant points of the failing empire, the transplanted Romans were spreading among the nations their habits and customs and fashions of building, so that everywhere even to this day, and more especially in the East, the Roman traditions may still be traced with scarcely a modification. But if the houses of the Persians and Arabians recall the villas and mansions of Rome, in modern Rome itself and throughout Italy these traditions have long since faded away, and we seek in vain for the ancient palace in the palazzo Farnese, or for the villa of Augustus or Tiberius in the villa Pamphili or the villa Albano.

In the latter days of the empire, and even before Constantine, the art of architecture had become debased. At Rome there were no more artists, if even there were laborers to build. The new monuments were decorated with fragments stolen from the more ancient; the arch of Constantine was covered with bas-reliefs and adorned with statues taken from the Forum of Trajan. The art of sculpture had fallen into oblivion, and the emperors, in the midst of all their power, were reduced to the necessity of pillaging the monuments of their predecessors; they began the work which the barbarians finished, and destroyed the most admirable works of art to construct buildings in the worst taste, and covered with enrichments badly designed and miserably executed. Thus is stripped for our inspection the feeble side of Roman architecture. The Romans had, as we have already explained, so carefully separated the building from the art, had used the latter so essentially as a mere covering or envelope for the former, that art, treated thus as an extraneous thing,

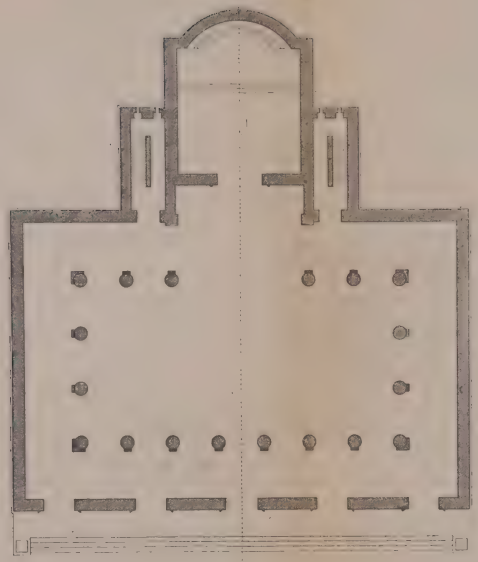
before long lost the consciousness of its inherent value; the artists themselves soon disappeared, and even the craft of the stone-cutter was forgotten: so true it is that neither power nor wealth suffices to create artists.

Thus the West, from the time of Constantine, was subjected to a long succession of devastations finally consummated by the barbarians. During this sad period, art took refuge in the East at Byzantium; there it was revived among Greek traditions, it borrowed from Asiatic civilizations and was transformed. We shall soon see how Roman art, thus transplanted and modified, for a long time illuminated Western Europe; how it reacted in Asia and on the southern shores of the Mediterranean; how, following the path of commerce, it returned transfigured to the land it had left; how it mingled with its own ancient traditions in Gaul and Italy; and how, in fine, it adapted itself to the genius of barbaric nations.

This study will not only have an archæological interest, but, in my opinion, will materially assist in the delivery of modern arts yet unborn. It is in this point of view that I propose to present it. If we can forget our old prejudices, if we can make ourselves familiar with the true elements which constituted the architecture of antiquity, and with the manner in which our ancestors adapted these elements to the genius of our nation, we shall have traced the path which every independent mind can follow in the future to a triumphant issue.

It cannot be that Christianity supplanted the habits and customs of antiquity in a day; no physical or social revolution can be made in this world without transitions, and the more the new principles differ from the old, the longer and more laborious must be the transition. It is true that a few choice spirits passed from Paganism to Christianity with a bound; but the multitude, though they had become Christian in name, worship, and profession, long remained Pagan in manners and habits. Thus slavery existed in Europe long after Europe had recognized the Christian law. The natural antagonism between the old traditions and this new law was the cause of protracted struggles. Hardly had Christianity become the religion of state in the empire, when on all sides arose innumerable schisms and heresies, which in reality were but the protestations of heathen philosophy and habits against the new religion.

The same phenomena may be observed in the history of the arts,



THE BASILICA OF FANO.

PLAN.

and these, being, at the period we are about to contemplate, intimately allied with religion, were for a long time uncertain in the progress they were destined to make. Indeed, as regards the arts, the difficulty of transition was even greater than that suggested by the analogy; for while a dogma may, by imperial decree, be constituted a national creed, it is otherwise with an art, like architecture, which must be expressed through the free agency of a multitude of artists, artisans, and workmen, all with their prejudices and traditions. Christianity, in its beginning, could not but avail itself of Pagan arts, and it was very slowly that these arts received the modifications and new expressions, which, as they arose, were ever hotly contested. We must then be prepared to find in the history of the architecture of this period of transition between antiquity and the Middle Ages much blind groping and many schisms. Faithful to the programme I have laid down, I shall in this manner endeavor to attract my readers towards those invariable principles which are capable, at this day, of leading to practical results, to the knowledge, in short, of the true architectural expression of our own genius and our own times.

SIXTH DISCOURSE.

ON THE DECLINE OF ANCIENT ARCHITECTURE. — ON STYLE AND COMPOSITION. — ON THE ORIGINS OF BYZANTINE ARCHITECTURE. — ON THE ARCHITECTURE OF THE WEST SINCE THE ESTABLISHMENT OF CHRISTIANITY.

THE question which now naturally presents itself is concerning *Christian art:* whether there is such a thing, properly speaking; whether Christianity has on the whole been favorable to the development of art; and whether, without its assistance, Pagan art, whose decline and fall we have just been contemplating, could have been modified or revived. To resolve this question, let us briefly glance at the history of ancient and modern civilization.

So far as our knowledge of the civilizations of antiquity extends, it is admitted that they all progressed more or less rapidly to a complete development and then fatally declined; while those of Christianity wavered for a long time, had their epochs of brilliant success and of profound depression, but never fell so low that their inherent vigor failed to revive them for a new career; they seemed constantly to refresh themselves at an inexhaustible source of active principles; they slumbered at times, but never died. Thus, the Christian West, though founded upon the ruins of antiquity, though, during eighteen centuries, it has been bathed in seas of blood and been exposed to the most monstrous excesses with all the attendant evils of ignorance, error, fanaticism, prejudice, disorder, revolutions, wars, tyranny, or anarchy, — the West, far from being exhausted, seems to live a new life. The terrible ordeals through which it has passed have not weakened either its force, its intelligence, or its material preponderance in the affairs of the world. Must we admit that art alone

has not been strengthened and inspired by this vital force of the modern societies of Western Europe, that it has not participated in their movements, that it is a faculty apart, and that it has died in the midst of a civilization still progressing and ever renewed after every trial? Let us examine into this last question.

Art is either independent of the modern civilization of the West, or it is one of the expressions of that civilization; if it is independent, modern society has nothing to do with it, we can dispense with it or it can dispense with us; but, on the other hand, it is not difficult to prove that art has been one of the most powerful levers of this civilization. Though many are ignorant of this fact, or seem to be so, it is none the less true. To confine ourselves for the present to France, it must be admitted that the influence of this nation in the world is not due to its agriculture, which simply supports the people; nor to its industry, which, in a material point of view, is inferior to that of England; nor to its finances, for it does not control the markets of the world; nor yet to its arms, for the force of arms, in itself, when not applied to support or propagate great ideas, only excites defiance, or, at best, earns for the nation, which is ever ready to draw the sword for the sake of principles, a warlike reputation. Her true arms, her real strength, is in her ideas, and in the various expressions of her ideas, which, in fact, are so many forms of art. The world reads French books and wears French dresses; indeed, the characteristic national influence of the country over the affairs of the world arises from the universal application of art to everything she does. Art, therefore, must be recognized as one of the elements of French civilization; and if this civilization is on the broad road, not of decline, but of progress, her arts should naturally be in a flourishing condition; if they are not, the misfortune can only be attributed to the artists. Now, as regards architecture, I am convinced that we are far behind the times. In this respect we are just at the point where the West was in the time of Gálileo in regard to science. Those who consider themselves the guardians of the *eternal principles of beauty* would gladly shut up, if they could, as a dangerous madman, any one who should undertake to demonstrate that such principles are independent of any particular form of expression, and that there is no reason why, because the principles are invariable, these forms should remain eternally unchanged and confined to certain traditional rules, governing all detail and proportion. Here for four hundred years we have been

disputing about the relative value of ancient and modern art, and during all that time our discussions have turned, not upon essential principles, but upon quibbles and equivocations, upon details and precedents, upon the authority for this, that, or the other form. The result is, that we architects, absorbed in an art half science and half sentiment, have succeeded in developing for the public only certain mysterious hieroglyphics which they cannot possibly understand, and so they let us wrangle among ourselves in the empty vanity of our exclusiveness. Shall we never have our Molière to treat us as he did the physicians of his time? We too have our Hippocrates and Galen; must we harp on them forever?

I am ready to agree with any one that pure invention is not necessary to architecture; that the duty of architects is not to create, but to analyze, combine, and appropriate the traditionary forms at their disposal; that the art is so imperious concerning the means of execution, that we must take all the elements of design from the experience of the past. Architecture, in fact, requires two different operations of the mind, — the study and the application of precedent; application, because if all the masterpieces of the past were collected together in the brain of a single man, if he did not know how to avail himself of this knowledge, if he had no method to enable him to design properly by the aid of these masterpieces, he could only produce incongruous combinations of poor copies, mere imitations, which, in artistic value, would be far beneath the work of the barbarian who has no research, and has never studied the works of the past.

The art of architectural design rests upon two perfectly distinct elements, — necessity and imagination. Necessity imposes the programme; it says, "I want a house with air and light"; but what is imagination? It is the faculty given to man to reunite and combine in his brain the things which have affected the senses. Even abstractions must be made tangible in form before the human imagination can conceive them. The professor of geometry, tracing a line upon a board, says, "The straight line is the shortest distance between two points." The pupil does not question this axiom; his mind immediately comprehends it, because his imagination represents to him two visible points and a visible straight line uniting them. He is told again, "A point has neither extension, width, nor height; a line is but a succession of points, and has therefore only

extension." His mind at once admits the abstraction, but his imagination, which is but the daughter of his memory, pictures to itself always two visible points united by a visible line. The mind acknowledges the infinite, but no human imagination can represent infinity. A man born blind and deaf, and without hands, could have no imagination. In the same manner, when one says to an architect, "I want a room," his memory at once recalls some room he has seen. "I wish this room to be high,"—his memory instinctively goes to work and revives the image of a certain high room. "I wish it to be very open, and to receive light freely,"—again his memory travels and again finds a room fulfilling these conditions. All these mental operations are instantaneous. The architect is left alone; the programme is before him and he must meet all its requirements; then, when the resources of his memory have presented to him in disorder all the imagery suggested by the problem, his reason intervenes, he discusses, chooses here and there, rejects this and that, until imagination has composed piece by piece and presented to his mind the room complete. Though the result may, as a whole, be dissimilar to anything that his memory has offered, yet memory is the essential and indispensable agent of the conception.

Memory, that is, the faculty of repeating in the brain what one has seen, heard, or felt, has been called *passive* imagination, and the second faculty of combining these sensations and of thus forming a new conception has been called *active* imagination. Animals possess the former, but man alone is endowed with the latter. Thus swallows remember where and when they should make their nests; and all swallows, since swallows have existed, have done the same thing. Man, in the same manner, knows he must make a shelter for himself; but, in a few centuries, from the mud hut he arrives at the palace of the Louvre. And why? Simply because man reasons, and his *active* imagination is nothing less than the application of reason to his *passive* imagination. "Active imagination," said Voltaire,* "so far from being, as is vulgarly supposed, together with memory, the enemy of judgment, cannot act without the assistance of the most subtle exercise of that faculty; it combines the pictures of memory, corrects their errors, and constructs all its fabrics with order and harmony. There is an astonishing imagination in practical mathematics, and Archimedes had at least as much imagination as Homer."

* "Dictionnaire Philosophique."

We must therefore reject the vulgar error that reason stifles the imagination, and that, to create new things, the resources of memory are not required. On the contrary, to create new things, the judgment must arrange and order the elements brought together in the mind by the *passive* imagination, or memory. Enlarge your knowledge of precedent, form your judgment, learn to reason, and your faculty of invention will be increased.

There is, however, a distinction between the action of the imagination among primitive, barbarous men and among civilized and educated men, for the *passive* imagination of the barbarian retains comparatively but an incomplete and misty image of the objects which have presented themselves to his senses; it is a mirror which exaggerates or deforms that which it reflects, while the memory of the civilized man is a sort of dry catalogue, precise and clear. The result of this difference is that the *passive* imagination of the primitive man is poetic, and his *active* imagination unformed and poor; but, while the memory of the cultivated man repeats the real appearance of things with prosaic accuracy, his *active* imagination may be highly developed and very poetic. Thus, when he sees a weight oscillate at the end of a cord, his *passive* imagination faithfully notes the fact and attaches no supernatural influence to the phenomenon; for him, no invisible spirit pushes the pendulum hither and thither; but his *active* imagination intervenes and says, "There is a law here; this weight oscillates because it is under the influence of two forces, one accidental, which has deranged its normal position, the other necessary, which tends to restore it to that position; this last force, then, is a physical law, which causes the weight to bring the cord perpendicular to the horizon; it is attraction which compels this weight to tend towards the centre of the earth." Another observer, having attached a ball to the end of a piece of string, causes it to describe a circle by a movement of his hand. He perceives that the rotatory movement imparted to the ball keeps the string in a state of tension, which is increased as the movement becomes more rapid. His *passive* imagination recalls to him that the moon revolves around the earth and the planets around the sun; then his *active* imagination gives him a glimpse of centrifugal and centripetal forces. Let us take an instance which has closer relations to our subject. A barbarian, after visiting Rome and seeing its various monuments, returns to his native country; his uncultivated memory depicts the edifices

with the sculpture and painting which decorated them; he has not observed the relations between the various architectural members; he has been much more impressed by the details of the sculpture, the subjects represented in the paintings, than by the proportions, the wise employment of materials, or the adaptation of the buildings to the purposes they were intended to fulfil. The objects which he has seen assume in his memory fantastic shapes, like the imagery of dreams; the grand becomes the gigantic; the powerful engines lifting enormous weights become sentient monsters; the statues are animated; the paintings see and speak. On his return, he wishes to gather together his recollections, his *passive* imagination is in a fever; he also wishes to build; but his active imagination, his reason, is dormant, and the barbaric piles, which are evolved out of the tumult of lively and poetic impressions in his mind, are necessarily confused in all their elements, and everything is out of place. A few centuries later a civilized man comes, and, with cold, critical eyes, examines these rude essays; his *passive* imagination receives the impressions without any attempt to analyze them. When he is called upon in turn to design a monument, his mind recurs to the masterpieces of art; but he can only admire or imitate these; he cannot create with them until they are applied, as a pure and exact standard, to the memory of those barbarous structures, the artless but energetic expressions of a *passive* imagination stirred to its inmost depths. Then those coarse images lose their savage traits, the *active* imagination of the intelligent man is possessed and invigorated by the *passive* imagination of the barbarian; in his turn he sees, not the work of the barbarian, but the impression it left upon his mind, and he sees it with the power of reproducing it transfigured and purified for new uses.

There are times when man has need of the barbarous element just as the earth requires manure; for the brain, to be productive, must be disturbed by a moral fermentation, the result of contrasts and conflicts between the reality and the conception. The epochs most fertile in works of the imagination (and among these I class the arts, though there are those who produce works of art as manufacturers make yards of velvet) are the epochs, not of repose, but of agitation, those which furnish to the observer the greatest number of contrasts. When society has arrived at an advanced degree of civilization, when everything is pondered, provided for, ordered, and arranged, there is

established a general level of comfort, convenience, and conventionality, which, while they make mankind happy, do not excite his intelligence. The arts require movement, struggles, revolutions, obstacles even; the absence of such movement in the moral as in the physical world soon leads to corruption. Roman society, placed in the centre of the West, the absolute mistress of all known peoples, became enfeebled and corrupt for the want of obstacles to overcome, for the want of discussions and contrasts. Manners and arts decline for this only reason, that everything which is not refreshed in this world by the movement and contrast of foreign elements must perish. Ideas are like families; they must be crossed, or else they physically decline.

What becomes of the poet in the midst of a society perfectly ordered, governed, and policed, in which every one has nearly the same quantity and the same kind of ideas on every subject? Excess and contrast are necessary to him. When the man of feeling sees his country down-trodden, when he is the witness of odious abuse, when his conscience is oppressed, when he suffers or hopes, if he is a poet, he will inevitably be inspired; he will write and excite emotions; but if he lives in the midst of an elegant, tolerant, and self-indulgent society, where all excess is regarded as a mark of bad taste, how is he inspired and where his theme? He will describe flowers, streamlets, and verdant meadows, perhaps, or, working himself into a fictitious frenzy, he will plunge into the realms of the fantastic, the astonishing, the impossible, or he will give utterance to a vague desire, a causeless complaint, he will express sufferings without an object. But the true poet, penetrating beneath the surface of society, however calm and smooth and specious it may be, will discover sentiments which can never perish while there is life; he will discover the eternal warfare of noble and base passions in the human heart, and will set once more before the eyes of men those contrasts which they have forced to disappear, and thus will be heard and read. The more society is civilized and governed, the more the artist, if he would make an impression on its serene surface, is constrained to analyze and dissect its passions, manners, and tastes, to recur to principles, to seize them and hold them up naked before the world. Yet it remains true that it is far more difficult to be an artist in times like ours than among gross and savage people swayed without restraint by tumultuous passions.

Thus, in primitive epochs, *style* imposed itself upon artists; to-day the artist must seek for style.

But what is style? By style I do not refer to the classification of art by periods, as the Byzantine style, the Saracenic style, the Greek style, but I mean that style which is inherent in all arts of all times. Thus the writer in any language has his peculiar style; but there is also a style belonging to all languages and peculiar to none, because it appertains to humanity. This style is inspiration, but inspiration submitted to the laws of reason, inspiration which confers an individual distinction upon every work resulting from a true sentiment, which has been rigorously analyzed by reason before it has been expressed; it is the intimate accord of the faculty of imagining and the faculty of reasoning; it is the effort of the *active* imagination informed by reason. I have said in previous pages that the *passive* imagination of the Greek recalled a man on horseback, but his *active* imagination inspired him to make one being of these two; and his reason taught him how to unite the torso of one to the breast of the other: he created a centaur, and that creation had *style*, not because it was Greek, but because it was an inspiration.

A distinguished writer has lately said that in architecture "style is first the epoch, then the man."* This definition seems to me to confound that which is conventionally called *the styles* with style. It may be said that the style of some epochs, like that of the Romans under the last emperors of the West, is entirely destitute of style. There is a Louis XIV. style and a Louis XV. style, and ingenious parties have lately discovered even a Louis XVI. style; yet one of the characteristics of the art of architecture at the end of the seventeenth and through the eighteenth centuries is absence of style. "We must define terms," said Voltaire, who was apt to be right. Style proper and style as referred to in antiquarian nomenclature are two distinct things.

Style consists in distinction of form; it is one of the essential elements of beauty, but it does not in itself constitute beauty. Civilization dulls, but does not destroy those instincts of man which lead him to put style into his works. These instincts act in spite of ourselves. In the midst of society you distinguish one person above all others. This person possesses none of those striking characteristics which constitute beauty; her traits are irregular; and yet, your

* "Traité d' Architecture," by M. Léonce Raynaud, Vol. II. p. 86.

eyes are strangely fascinated by her. Even though unaccustomed to habits of philosophic observation, you soon can analyze the cause of the mysterious attraction. At first view it is, perhaps, a distinguished elegance of line, a harmony between the bony and muscular systems; the combination may be irregular and without strict beauty or correctness of outline, yet it is a combination which at once arouses either your sympathy or your antipathy. Your thoughts are preoccupied by her shape, a certain propriety or singularity of relation between her frame and the envelope which encloses it, the way in which the hair is attached to the cranium, the limbs to the body, the harmony between the gestures and the thought. Soon you seem to have distinct ideas concerning her habits, tastes, and character; she becomes the theme of a complete romance in your mind, though you have never seen her before, do not know her, and have never spoken to her. This mysterious attraction of animated beings is due to *style*. The human species is so often marred by false education, by moral and physical infirmities, that it is unusual to meet with style in one of its members. But animals, as distinguished from man, always possess this harmony, this perfect conformity between the envelope and the instinct, the breath, which makes them live; all, therefore, from the insect to the noblest quadruped, have style. Among them, a false gesture, a movement which does not clearly and directly indicate a definite intention, a desire, or a fear is impossible: they are never affected, mannered, or vulgar; whether beautiful or ugly, they all are *stylish*, because their instincts are simple, and the means by which they accomplish their purposes direct and natural. But man, and especially civilized man, as he is an extremely complicated animal, as he is transformed by an education which obliges him to contend forever against his instincts, by self-denial, in short, to obtain style, must, so to speak, make a retrospective effort. Every one must sympathize with Alceste when he claims to prefer the nursery rhyme,

"Si le roi m'avait donné
Paris sa grand'ville,"

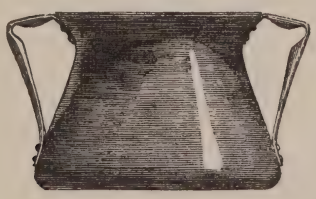
to a sonnet of Orontis; but unhappily this does not prevent poetasters like Orontis from going on making vapid sonnets, and architects from covering their buildings with ornaments without reason and without style.

We have to-day become strangers to those elemental and simple

ideas of truth which lead architects to give style to their designs; it is therefore necessary to define the constituent elements of style, and, in doing so, to carefully avoid those equivocations, those high-sounding but senseless phrases, which have been repeated with all that profound respect which most people profess for that which they do not understand. If ideas are to be communicated, they must be rendered palpable and tangible. If we wish that style, as regards form, should be comprehended, we must consider form in its simplest expressions.

Let us, then, take one of the primitive arts, that which is first practised, because first needed, among nations, — the art of the coppersmith, for instance. It is unnecessary here to consider how long it was before man was enabled so to refine and to reduce copper to thin plates as to be able to make of it a vase fit to contain a liquid. We propose to take the art at the moment when it has been discovered that, by beating a sheet of copper in a certain manner, it can be modelled and made to assume the form of a vase. To obtain this result, the workman requires but an anvil and a hammer. By the proper use of these tools he can cause a sheet of copper to return on itself and from a plane surface create a hollow body. His first care is to make a flat, circular bottom for his vase, in order that it may stand firm when it is full; and to prevent its contents from spilling when it is moved, he contracts its upper orifice and then spreads it suddenly at the edge, to facilitate pouring out. Fig. 19 presents the

Fig. 19.



most natural shape, given by the method of fabrication, for such a vase. To enable the vessel to be lifted conveniently, the workman attaches handles to it by means of rivets; but, as the vase requires to be inverted when it is empty, that it may be dried, he so shapes these handles as not to arise above its upper level. Fashioned thus in the necessary progress of fabrication, the vase has style, first, because it distinctly indicates its own destination; second, because its material has been shaped with the simplest regard for its adapta-

bility to the requirements; and, third, because the form obtained is that which most readily conforms to the substance of which it is made, and to the uses for which it is destined. It has style, because the human reason has indicated exactly its appropriate form. But the coppersmiths themselves, in their desire to do better or otherwise than their predecessors, soon quit the line of truth and propriety. There comes then a second coppersmith, who proposes to modify the form of the primitive vase in order to seduce the purchaser with the attraction of novelty; to this end he gives a few extra blows of the hammer and rounds off the body of the vase, which until then had been regarded as perfect (Fig. 20). The form is in fact novel, and

Fig. 20.

Fig. 21.

it becomes fashionable, and everybody in town must have one of the vases made by the second coppersmith. A third, seeing the success of this expedient, goes still further, and makes a third vase (Fig. 21), with rounder outlines, for anybody who will buy it. Having quite lost sight of the principle, he becomes capricious and fanciful; he attaches developed handles to his vase, and these he declares to be in the newest taste. It cannot be overturned to be drained without danger of bending these handles, yet every one applauds the new vase, and the third coppersmith is regarded as having singularly perfected his art, while in fact he has only robbed the original work of all its style, and produced an object which is really ugly and comparatively inconvenient.

Thus it is with style in all arts. The arts which have ceased to express the necessities which called them into existence, the nature of the material employed, and the manner of fashioning it, have ceased to have style. The style of architecture of the Roman decline and that of the eighteenth century have no style whatever. Custom permits us to say, the style of the arts of the Lower Empire, of the reign of Louis XV.; but we should not say, the arts of the Lower Empire or those of the reign of Louis XV. have style, for their great defect (if it be a defect) is in being entirely regardless

of style, since they manifest an evident contempt for the true form expressive of the object and its usage. If a Roman matron of the time of the republic should make her appearance in a saloon filled with women clothed in cages of hoops, with powdered hair and a scaffolding of feathers and flowers on their heads, she would seem quite out of fashion; it is not less certain that her toilet would have style, while those of the ladies in hoops would be in the *style* of their time, but without *style*. This, it seems to me, is a definite point of departure to enable us to appreciate the meaning of this term. But it must not be supposed that style is peculiar to any fixed form, and that the women of the present day, if they desire to be *stylish*, should be clothed like the mother of the Gracchi. The robe of satin or of wool may each have style, but on condition that the cut of each shall not deny the form of the body which it covers, shall not ridiculously exaggerate it, shall not embarrass its movements, and that both stuffs shall be cut with a view to their respective characteristics. Nature, in all her works, has style, because, however varied her productions may be, they are always submitted to laws and invariable principles. The lilies of the field, the leaves of the trees, the insects, have style, because they grow, develop, and exist according to essentially logical laws. We can spare nothing from a flower, because, in its organization, every part has its function and is formed to carry out that function in the most beautiful manner. Style resides in the true and well-understood expression of a principle, and not in an immutable form; therefore, as nothing exists in nature without a principle, everything in nature must have style. I have already said, and I repeat it, for fear it may be forgotten, that discussions on art turn on ambiguities. You have been told in the schools that Greek art has the imprint of style, and that, as this style is pure, that is to say, complete and without alloy, you must copy the Greek form if you wish your art to have style. It might as well be said, the tiger or the cat has style; therefore disguise yourself as a tiger or a cat, if you would express style. Instead of this, it should be explained to you why the cat and the tiger, the flower and the insect, have style, and you should be instructed to proceed like Nature in her productions, and thus you would be enabled to give style to all the conceptions of your brain. This, it is true, is no easy task, surrounded, as you are, by a complicated civilization, which has no characteristic expression in art, which is under the dominion

of traditions and prejudices, swayed rather by habit than by conviction, which is fashionable, cloyed, sceptical, and little fitted to admit the true expression of a principle; but it is not impossible.

Any doctrine which tends to prove that a very advanced state of civilization necessarily excludes style from art, seems to me very singular. It is always possible to give to the arts the element necessary to their splendor and their duration. To this end, the work of cold reason is alone essential. To explain: among primitive people, the spirit or imagination of the artist is capable of producing works possessing style, because this spirit or imagination proceeds like nature. A necessity or a desire manifests itself, and man employs the most direct means of satisfying it. Style, then, resides in the simplicity of the means employed by the artist, it is independent of the man; but with us in modern times the conditions are different. We can read and write, we have been taught to translate Greek and Latin classics, we have learned Corneille, Boileau, and Racine by heart; the beauties of these poets and writers have been duly explained to us; if we have been attentive, we understand these explanations, but hardly the qualities to which they relate; imbued, as it were, with this education (which, indeed, I am far from blaming), we leave college, and if we wish to give expression to a thought which occurs to us, we first study what Cicero, Horace, or Boileau would have done, if they had been called on to give a literary or poetic turn to the same thought. Thus our education leads us to give to the issue of our own brains a style which belongs to works whose merits we have been made to appreciate. But in literature it is necessary,

Que toujours le bon sense s'accorde avec la rime;

because everybody reads, and nearly everybody can understand what he reads. The poet or writer of our days, who "from heaven has received the secret influence," without forgetting Cicero or Virgil, Racine or Voltaire, expresses his ideas, not by imitating literally the forms and turns of expression employed by those authors, but simply by proceeding as they would have done under similar circumstances. Instruction aids the true writer, because public opinion is his true guide. But in the art of architecture we have not this touchstone of common-sense. The public regards architecture as one does a book which he cannot read. His admiration stops at

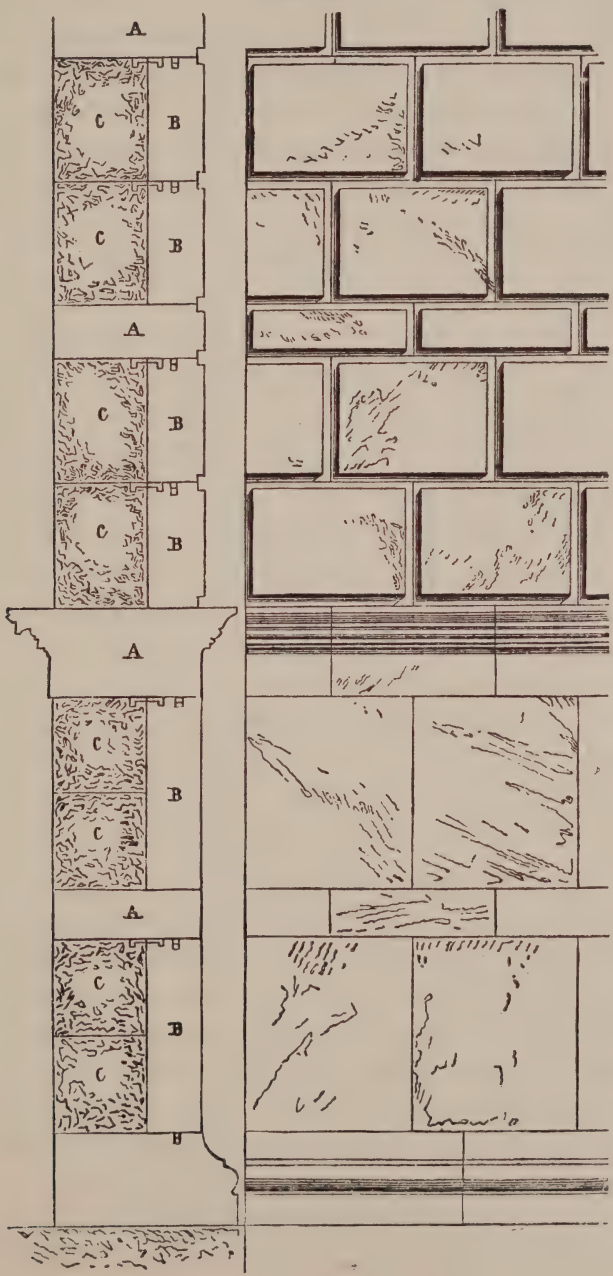
the binding and the typography. Even if the book is full of the dullest follies, it does not disgust the man who cannot decipher its characters. Deprived, then, of the chastisement and spur of public opinion, our young architects study and cherish the works of antiquity and of what are called the first modern epochs. We go to Rome or Athens. Filled with fine examples of antiquity which we have seen under a pure sky, we return one day to be once more plunged in the fogs of the Seine or Thames, and we are called upon to design a building according to new requirements which were never dreamt of in Greece or Italy. And here it is well to observe that, if the works of Virgil, Horace, or Cicero have come down to us entire and pure from all alloy, it is not so with the architectural monuments of antiquity, those mutilated ruins of an art, whose true motives and inspirations, whose exact relations with the manners and ideas of the people who constructed them, there is hardly an author or a tradition to explain to us. Doubtless the passions and emotions of the human soul are the same in all times; but this does not mean that Napoleon I., for example, had the same ideas as Alexander about men and things. It is precisely these differences between men, as regards their ideas, which have and should have a great influence upon art, and the art of architecture in particular. A Greek or a Roman may have attached to certain forms ideas which are lost to us; from the moment when these forms ceased to be the expression of ideas to us, they became meaningless and should have ceased to exist as motives of design.

I am very ready to admit that beauty is a positive quality; that, to use the language of a modern author regarding architecture, "the good is the essential basis of the beautiful." But the question is, What is the good? For most people, it is good to employ habitually a certain idea or form, although that form or idea may not be good when compared with others. We call a proceeding or a custom good because it is familiar to us; yet, relatively to another proceeding or another custom which is unknown to us, it may be bad, or at least insufficient. Thus, it was good to navigate with sails before the force of steam was known; but this means of navigation, excellent in past times, is not good when compared with those which modern industry furnishes us with. We can say the same of the ideas, the systems, the principles, which govern art; when, in the course of material progress, they are modified, the forms which

faithfully expressed them, and were therefore beautiful, must, to remain beautiful under the new conditions, undergo a corresponding modification. We admire a hundred-gun sailing-ship of the line; we recognize, in this work of man, not only the effort of a marvellous intelligence, but forms so perfectly adapted to their uses as to seem, and, in fact, to be, beautiful; but, however beautiful these forms may be as regards their fitness for the uses of propulsion by wind, from the moment when the power of steam was discovered for marine uses, they became obsolete and were no longer *good*, and, according to the axiom we have just cited, they cease to be beautiful for us in their application to the art of ship-building. At our epoch, therefore, when we are under the dominion of an absolute necessity, we submit our works to this necessity, and these works thus have style, because they are the result of the rigorous application of a principle. But we construct public edifices without style, because, in architecture, we are not governed by such an absolute necessity as constantly invigorates the mechanic arts, and we allow ourselves to ally forms, which were good and beautiful in their relations to old traditions, to the new and modified uses of the day. Naval constructors and mechanical engineers, when they make a steamboat or a locomotive, do not seek to recall the sailing-ship of the time of Louis XIV., or a coach-and-four; they obey without question the new principles which are laid before them, and produce works which have their peculiar character and style, inasmuch as they distinctly indicate their uses to every eye. A locomotive, for instance, has its peculiar physiognomy, not the result of caprice, but of necessity. It expresses controlled power; its movements are gentle or terrible, it advances with awful impetuosity or, when at rest, seems to tremble with impatience under the hand of the engineer. It is almost a living being, and its exterior form is but the expression of its power. A locomotive, then, has style. Some say it is but an ugly machine. And why ugly? Does it not have the true expression of brutal energy? Is it not a complete organized mass, possessing a particular character, like a piece of artillery or a rifle? A thing has style when it has the expression appropriate to its uses. A sailing-vessel has style, but a steamer, which should conceal its motive-power to assume the appearance of a sailing-vessel, has no style; a rifle has style, but a rifle made to resemble a cross-bow does not. Now we architects have for a long time past been endeavoring to fashion our

rifles to imitate the cross-bow as nearly as possible, or at least the arquebuse, and there are many grave people who will maintain that, if we abandon this form, we shall become barbarians, that art will be lost and must needs cover up its face in shame. But let us leave metaphors.

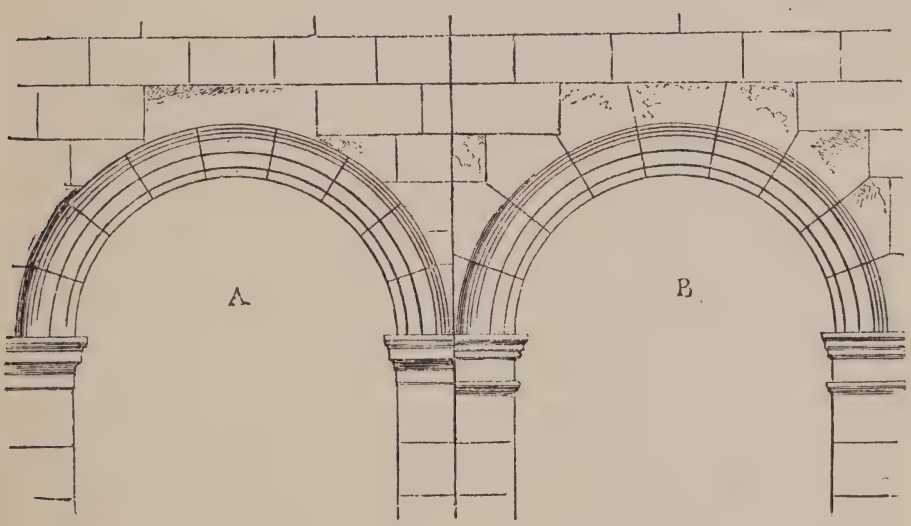
Fig. 22.



Here (Fig. 22) is a construction of the best Roman period, that is, the period during which the Greeks were called upon to construct the edifices of Rome; it is the wall of the circular cella of the temple of Vesta, on the banks of the Tiber. The columns of this temple are marble monoliths, and the wall of the cella is faced on its exterior surface with the same material; but marble was a material rare enough at Rome to make it desirable to avoid a prodigal use of it. This wall, therefore, is composed, at intervals, of thin courses of marble, A, running through its whole thickness, and, between these, of an ashlar facing B, also of marble, with an economical backing of travertine, the calcareous stone of the country. The backing and facing are always clamped together with iron. On the interior face the courses of travertine were covered with painted stucco. This is a wall, a simple wall, whose construction has style. The alternation of thin courses serving as ties or bonds for the facing, the square channels along the joints frankly confessing the form of every stone and showing the means employed, all make up, without affectation, a decoration full of style, because the eye at once comprehends the solid and well-reasoned structure. Seduced by the firm and elegant appearance of this simple wall-facing, an architect, on his return to Paris, desires to reproduce it. But there he must construct with stone, and not with marble; they send to him from the quarry courses of equal heights, composed of stones from three to six feet long. Should he amuse himself by cutting these great blocks into small pieces in order to enable him to imitate the style of rustic masonry in the temple of Vesta? Or, rather, should he content himself with an appearance, and cut grooves where there are no joints? In the first case, he will make a bad and costly structure; in the second, he will utter a lie in stone: in either case, his construction will have no style, because it will not be the expression of the nature of the material employed, or of the manner of employing it in Paris. An isolated Roman Corinthian monolithic column in marble or granite has style, because the eye traverses the great block of stone from its base to its summit without finding a single joint to disturb the expression of homogeneousness belonging to its rigid function as a slender support. But a Corinthian column made of courses of stone, like those of the Madeleine or the Pantheon at Paris, has no style, because the eye cannot be satisfied at seeing such a slender supporting member built up with a pile of small stones. If the material, or

the means of employing it, is changed, the form should be changed also. If you change the requirements of a building, you must change its plan also. A profile of mouldings has in itself no style; its style consists in its fitness for the duty it performs and the place it occupies. The Romans, though inferior to the Greeks in respect to the application of style to their work, are yet very superior to us. Thus, in building an arcade bearing a wall, they were accustomed to give to the arch-stones (*voussoirs*) of their arches all the strength necessary to their function, and they decorated these arches with mouldings (*archivolts*) which followed the continuous outer line (*extrados*) of the voussoirs (Fig. 23, A), and were cut only on those stones. We find these arcades very beautiful, and we undertake therefore to make

Fig. 23.



similar archivolts; but, barbarians that we are, we build them up as indicated at B, where the mouldings of the archivolt do not follow the constructive line of the voussoirs, which jut out beyond the archivolt and fit into the courses of masonry above; this is the merest nonsense. The architect says to the public, "You admire the arcades of such a Roman edifice; admire also mine, which are faithfully copied from them." But the public does not admire the copy; it cannot explain why, nor does it understand the difference between an arch with an extrados (A) and one whose voussoirs are built into the courses of the wall above (B); but there is something in the contradiction between the construction and the decoration at B which in-

stinctively displeases the multitude, who very properly turn away to admire the old Roman model. It must be admitted, however, that the Romans were the first to forget the true principles of style, and it is in this forgetting that we must avoid following them.

To-day style has fled from the fine arts and taken refuge in the industrial; but, to restore it, we need only a little of the same good sense applied to our study and appreciation of the fine arts that we apply daily to the affairs of material life. But, so far from this being the case, it would seem that the more rationally and logically we act with respect to the industrial arts, the more irrational and illogical, capricious and prejudiced, are we as regards the fine arts. We, who, in the fabrication of our machinery, give to every part the strength and the form which it requires, with nothing superfluous, nothing which does not indicate a necessary function, in our architecture foolishly accumulate forms and features taken from all sides, the results of contradictory principles, and call this art. I have often heard architects complain, because the industrial were gradually supplanting the fine arts, and the special schools of applied sciences were gaining ground on the school of fine arts. But whose fault is this? If architects will only learn to reason about what they do, if they will only apply analysis to their designs, if they will only cease to believe that they have obtained style when they have adorned a façade with Greek columns or Gothic pinnacles, without being able to give any reason for their use of such forms, they will soon regain for art the ground which it is losing every day. It is true that, to obtain this result, so desirable, so necessary I may say, for the real progress of art, needs courage, tenacity, and conviction; it requires an abandonment, without scruple or false shame, of all those vulgar prejudices which, from infancy, have been taught us as laws; it requires the formation and the ceaseless application of judgment. We must try to do as the Greeks did, who invented nothing, but transformed everything. Our admiration of them must not be content with copying their works, as a clerk copies a manuscript, without reading it; we must read the book and fill our minds with it, before copying its letter.

Every artist, whether musician, architect, sculptor, or painter, may, by means of a profound knowledge of the resources of his art, and by a just reasoning, put style into his works, for study and observation must naturally reveal to him what are the qualities which con-

stitute style; and from analysis he will readily pass to synthesis. Even the artist who possesses sound practical information only, and no genius (and it is as well to assume that we all belong to this category), can readily comprehend style, and introduce into his works that quality which alone will cause them to be handed down to posterity. As we have come late into the world and are embarrassed by precedent, it is very difficult for us to have new ideas; it is as much as we can do to preserve style in the productions of our art; but, as style is simply the result of the application of common-sense to an object, this is not impossible. Observe, I do not confound style with *manner;* for manner is to style what affectation is to elegance. Certain privileged natures are born with that gift which we call grace; but observation, the habit of the beautiful and the good, which is taste, may lead men to be graceful in all they say or do; manner is but the superficial imitation of style, it is not intelligence.

The artists of our epoch, and, of these, the architects in particular, are weak enough, it seems to me, to believe themselves geniuses; at all events, they act as if they supposed themselves to be so. When they design, they mistake the vagaries of an imagination too full of memories, but without convictions, for the inspirations of genius; thus they produce monstrosities. Eclecticism is good only when submitted to a wise discrimination, sure of its knowledge and possessing decided principles. But when eclecticism is used by an indecisive mind, which has not taken time to obtain convictions by means of a careful and intelligent study of art, it becomes an evil; for in this case it necessarily excludes style in admitting indifferently all the various forms and expressions of historical art, without knowing how to apply any one of them properly to the requirements of the moment. The Egyptian, the Greek, the Roman, the Byzantine, the Gothic architectures have style; but the expressions of style are different in each, because each proceeds from different principles to satisfy different needs. How, then, if you have no convictions founded upon analytical study, can you put style into your designs? It is very easy to say, "Take from every quarter, furnish your brain with everything which seems to you good, then, *then* compose!" But I have no guide; you have not habituated me to reason and discriminate; I have equally at the point of my pencil the temples of Egypt and Greece, and the vaulted monuments of Rome; I have arches and lintels, pointed vaults and round vaults: you have told

me to take from every quarter; this is very well, if I am to make a collection; but if I am to produce, what shall I do with all these acquirements? Where shall I begin, and where end? Among all these excellent things, which are the best, or which should recommend themselves to me more than others? If we are accustomed to proceed with intelligence in designing, if we have a principle, every labor of composition is possible, if not easy, and pursues a well-ordered and methodical course, whose results, if they are not masterpieces, are respectable and must have style. I know not whether poets, musicians, and painters are ever suddenly inspired to write an ode, to compose a sonata, or paint a picture; I am inclined to think not, because no poet, musician, or painter of genius has ever revealed to us any such phenomenon in his experience. The sacred fire does not kindle itself; in order to create a blaze, we must heap wood and live coals together, we must arrange the fagots and logs, we must blow the smouldering pile assiduously before it breaks into flame. Then, it is true, if everything has been well prepared in the chimney-place, the fire will gradually become bright and crackle and emit a grateful heat; but, I repeat, all this is not obtained without labor.

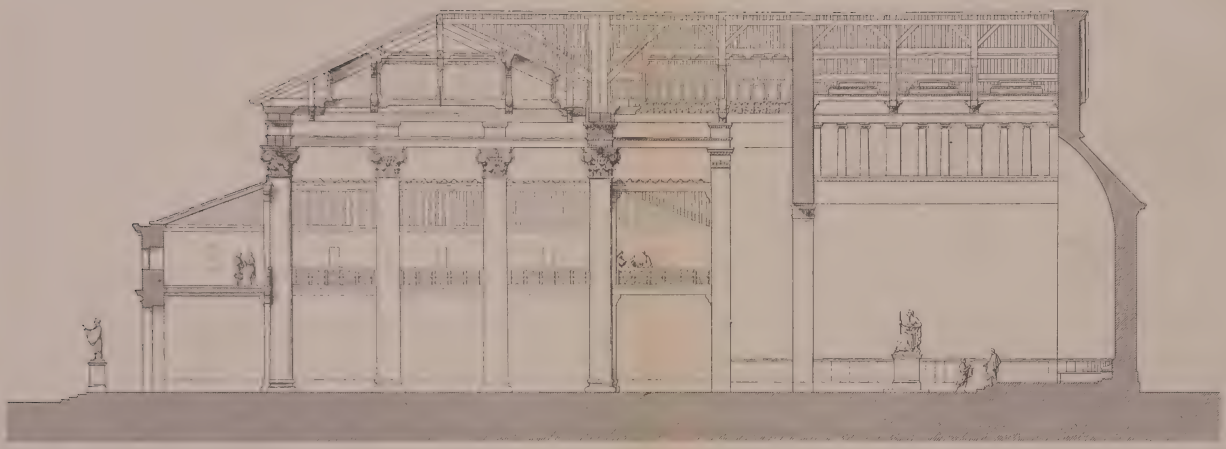
In like manner when an architect has an edifice to construct, a hospital, perhaps, a public office, or a palace, his first task is to deduce some order from the programme which is given him, as this, like all written programmes, is apt to be confused and contradictory. He must satisfy himself regarding its real requirements and their relative importance, without occupying himself with any consideration of architecture, in the ordinary use of the term; that is to say, with the decorative envelope in which the structure is to be enclosed. He is content for the present simply to get everything in place; he takes care to subordinate those parts of each division of the programme which seem to him, on examination, to be mere accessories; by slow degrees, its intricate and complicated conditions thus become simplified; for to reduce an elaborate problem to its elements needs careful analysis and judicious distribution. Then, having arranged the different wings or divisions of his edifice satisfactorily, when he proceeds to unite them in a grand whole, he finds he must recur once more to the work of simplification; the whole wants unity, the connections between the different divisions are awkward and artificial and require adjustment. He again applies himself to the task of arranging the plan, changes from left to right, puts that in front which

was behind, and returns a hundred times to the disposition of details in his design. Then the conscientious architect pauses and lays aside the sheets covered with the results of his studies, when suddenly he believes that he has discovered in his programme a principal idea, subordinating every other consideration. Light breaks in upon him; instead of examining the proposition before him in detail, to arrive at the general combination of the whole, he reverses the operation; he discovers that until then he has had but a glimpse of the true requirements of the structure, and finds that its various apartments and dependencies should be submitted to a new general disposition, on a larger scale, affecting all their mutual arrangements and communications. Thus the details of the plan, the study of which had severally taxed the resources of his mind, assume their natural positions. The leading idea found, the accessories arrange themselves without difficulty. The architect has become the master of his programme, he reviews his interpretation of it with deliberation, he completes it and brings it to perfection. But if, during these studies, he thinks about the orders, the works of the Greeks or Romans, of Pierre de Montereau or of Mansard, he is lost, he is overwhelmed by his own memories, and instinctively sacrifices some practical necessity of his plan to obtain a desirable architectural effect, to repeat, perhaps, a *motive* from the Parthenon, or from the baths of Caracalla, from the Sainte-Chapelle or the Invalides. No, the true architect does not allow his mind to be preoccupied by these monuments of the past. His plan settled upon, his elevations are a part and an expression of them; he sees how he should construct them, and the dominating idea of the plan becomes the principal feature of the façades. Considerations of stability and of the most economical methods of construction suggest to him the character of his exteriors. He must adopt some form, but he does not wish to be accused of imitating the architecture of the Romans, that of Louis XIV., of Saint Louis, or of Francis I.; he is even embarrassed by his predilections for this or that style, lest he be seduced by these from the capacities of his programme for individual and original expression. He makes an essay upon paper. "This part of my design," he says, "resembles such a monument; here I have an order which recalls such a portico; there are windows which are mere reproductions of those of such a palace. I must reject all these; I have been seduced by my recollections from the true requirements of my building. Let the material I have to use,

and the manner in which I must put it together to obtain stability, govern me in my elevations." Then arises under his hand a sort of carcass or frame, a combination of masses, in which he proceeds to make the exterior appearance a manifestation of the interior dispositions, to cause the idea of the plan frankly to reappear in the elevation, and to decorate or subordinate the various parts according to its suggestions. At this point the artistic capacities of the architect begin to be tested; for, to have a clear head, a practical mind, a power of expressing ideas with neatness and precision, is not enough; if he would be appreciated, he must gratify the eye, and clothe his truthful expressions with graceful and attractive forms. The discriminating artist, whose passive imagination has collected numerous choice precedents and classed them with discernment, has discovered that, in all the arts, including architecture, the means of expressing ideas are really very few; that grand effects are obtained by a very simple treatment of a dominating thought; that there is a measure in architecture, as in music and poetry; that the laws imposed by the common-sense of mankind, laws which are to the eye what morality is to the soul, a natural regulator, applicable alike in the midst of all creeds and all civilizations, cannot be safely disregarded by the architect; that his merit consists in being able to observe these laws, without repeating architectural forms of expression which have been previously employed; and that, after all, these laws are entirely independent of such forms. I propose, by and by, to return to the consideration of this subject so important for art, — the rules imposed by sentiment upon form. For the present, I limit myself to following the architect in the first part of his work, and up to the moment when, to give style to his designs, he needs only definite and well-ordered ideas, and to know how to express those ideas with neatness and precision.

Let us now see what the Greeks did, when ancient art, in its decline, had become but the pale copy of itself; let us see how, once again, as in the time of the republic, they became the initiators of new Western arts, and how they modified that Roman art which had been made to prevail over all Europe and a part of Asia.

The Romans, under the last emperors who preceded Constantine, had already evinced a decided inclination to locate the centre of the empire in the East. In Greece, on the borders of the Bosphorus,



BASILIQUE DE FANO

COUPE SUR LA LIGNE AB DU PLAN

Échelle de 0 5m 10 mètres

THE BASILICA OF FANO.

SECTION ON THE LINE AB IN THE PLAN.

in Syria, and even in Persia, they had built important cities, and constructed palaces and public works such as Rome herself never possessed. In these countries they had gradually become habituated to Asiatic splendors; although the political masters of Oriental nations, they had allowed their arts to be colored by Oriental taste. When at last definitively established at Byzantium, the Romans found there the elements of a Revival; if they did not actively desire this Revival, they at least were not opposed to it. A new worship had replaced that of paganism, and everything concurred to make this new Renaissance one of the most brilliant epochs of art. Up to that period Christianity, at one time persecuted and at another tolerated, had no art of its own; it lived upon ancient art, availing itself of monuments already built, without seeking to give to them a distinctive form or peculiar dispositions. As a place of reunion for the faithful Christians, the Roman basilica was naturally the most convenient edifice; and I think it may be safely asserted, that the arrangement of the Roman basilica, the civil monument, exercised a marked influence on the order of the first ostensible ceremonies of the Christians. But, however this may be (for it is foreign to our subject), they did not boast of possessing any peculiar art, and were glad to avail themselves of the services of such architects, sculptors, and painters as were at hand to build and decorate their civil or religious monuments. The dwelling of a Roman worshipper of Christ differed in no respect from that of a Roman worshipper of Jupiter; each possessed slaves, and a legitimate wife who lived in apartments especially assigned her, with her attendants and children; both passed the greater part of the day in public places, which were the same for both, save the church for the Christian and the temple for the pagan. Christianity, before it could have any influence on the arts, must first have its peculiar manners and customs both in private and public. Now, among the Latin converts, no such change had taken place; while among the Greeks, on the contrary, with their peculiar sensitiveness to religious and philosophic ideas, Christianity had aroused the intellectual faculties, and occasioned a mass of writings and discussions, which had so affected public opinion, that even those Roman emperors who lived among the Greeks at Byzantium were soon, contrary to the wise traditions of the empire, drawn into the controversies, and maintained heresies or dogmas against all comers. It was then that the new

religion began to have its influence upon art. For as the Greeks discussed points of doctrine, so they disputed regarding the representation of divine persons and saints; they protested against or approved them; and, approving them, their efforts were that these images should be hieratic; that the Church should adopt a consecrated form. The emperors themselves mixed in these scholastic discussions regarding forms as they mixed in theological discussions; they were far from being Antonines. Meanwhile, the West fell into the hands of barbarians; the Roman monuments, which covered the soil of Gaul, Italy, and part of Spain, were destroyed or ravaged; and for many centuries the most profound darkness reigned over these countries, which previously had been animated by powerful and industrious cities.

The emperors at Byzantium, renouncing henceforth all influence over the affairs of the West, lived in the midst of Oriental luxury, and, as I have already intimated, soon shared in the restless passions of the Greek populations among which they were established. In the mean while, art was transformed; the Romans carried with them the vault to the shores of the Bosphorus, or, if they found that feature already existing there, they at least imported their system of construction; as for their architecture, to which, indeed, we have seen they attached but little importance, they left this to be arranged by the taste of the Greeks, who, always subtle, proceeded by degrees to modify it essentially. At first they abandoned the Roman orders, composed of columns with complete entablatures, and gave up the use of the column itself, save as a rigid supporting member to carry, not horizontal lintels, but arches; soon they ceased to admire the Corinthian and composite capitals of Rome, as not presenting at their summits sufficient bearing surface to receive the springing of their arches, and as too slender and delicate in their character for the masses of construction with which they were loaded; they therefore dismissed these capitals, enlarged the abacus, and covered it with such superficial sculpture as should not detract from its solidity. Aiming at surprising effects, *tours de force* of architecture, they endeavored to build the hemispherical vault of Rome on four points of support by means of *pendentives*,* and, as in St. Sophia, to give

* Pendentives, in Byzantine architecture, are the concave surfaces (spherical triangles) growing upward and inward from the tops of the four piers, and uniting the adjacent arches, thus reducing the square plan to a round plan, whose diameter is equal to the side of the square, and from which springs the dome. — TRANS.

to these cupolas, thus suspended on four isolated piers, dimensions until then unknown. Justinian, to whom is attributed the construction of this colossal church, was much interested in the work and visited it daily. This cupola, which fell at the moment of its completion, was finally seated upon its four pendentives, when Justinian is said to have cried, "Glory be to God, who has judged me worthy of completing this great work! I have conquered thee, O Solomon!" It is of little importance whether this exclamation was actually uttered by Justinian, but it is of great importance that contemporary historians have imputed it to him, for it plainly indicates the changes which had been wrought in the spirits of the masters of the empire. At Rome none of the emperors appeared ever to have lingered in the sheds of the workmen, and certainly none were ever known to have made the construction of a building an important affair of life. The Greeks of antiquity, the classic Greeks, were accustomed to boast of their monuments, they were very proud of them; but the Romans hardly mentioned theirs, they were content to build and use them. A new sentiment, therefore, animated the minds of the East in the sixth century; this sentiment, a stranger to the Latin character, the issue of Greek vainglory, this tendency to hyperbole in regard to the creations of art, had a considerable influence on the progress of the arts, an influence which brought about unexpected results a few centuries later. Roman art at Byzantium, renewed thus by the Greek element, prospered for a long time, and divided into branches, into whose various directions and greater or less geographical importance I propose briefly to inquire.

Every one knows that shortly after Christianity had been recognized as the religion of the empire, numerous heresies arose in the very bosom of the Church. Among these heresiarchs, Nestorius, Bishop of Constantinople, was exiled in the year 431. Obliged to retire to the city of Panopolis, on the right bank of the Nile, he was followed and surrounded by numerous disciples who were outraged at the injustice which they supposed had been done him in sacrificing him to the credit of St. Cyril; these heresiarchs were soon favorably received by the followers of Mahomet, who found, among the proscribed, men familiar with Greek antiquity, cultivated in the arts and accomplished in all known sciences. It is very probable that the Mahometans employed these men in all those works of art which they had occasion to undertake, when, a nomadic nation of warriors

without artists or workmen, they had come out of their deserts and established themselves around the outlying provinces of the Eastern empire. Thus it would seem that after the fifth century one of the branches of this Byzantine tree, the issue of Greek and Roman arts, flourished in Asia, in Egypt, in Arabia, in North Africa, and soon, by way of Spain, spread even into the southern parts of the extreme West.

After the invasion of the barbarians, the only foothold which the Byzantine emperors could maintain in Italy was their exarchate at Ravenna, where, about the middle of the sixth century, that is to say, a little after the construction of St. Sophia, they built the church of San Vitale. This was almost the sole Byzantine landmark planted on the Italian soil. In the course of the eighth century, Leon, the Isaurian, elected emperor of the East in 717, having embraced the heresy of the iconoclasts, issued many edicts to suppress sacred images. He pushed his fanaticism to such an extent as to persecute all who were engaged in the study of the arts, to abolish the schools of sacred letters, and to burn the libraries; whereupon the painters and sculptors took refuge on the shores of Italy and spread over all countries. It was among these emigrants that Charlemagne found artists to aid him in developing the Revival which he projected. Here was another path by which the Byzantine arts penetrated into the West, while the Arabian Mahometans, developing the Byzantine arts of the Nestorians, spread them gradually from Egypt, along the African shore of the Mediterranean, till, as already observed, by way of Spain, they invaded the extremities of Western Europe.

The Eastern empire, in the eighth century, though menaced and enfeebled, thus, in spite of itself, spread the influence of its arts throughout Latin Europe, which had fallen into the lowest depths of barbarism. But meanwhile Roman architecture, which had left so many traces throughout Italy and Gaul, reacted against this foreign influence with more or less success. In Italy, especially, the old Latin genius admitted with great reluctance these Byzantine innovations; and even in Gaul the Roman traditions still preserved enough of their original strength to be only modified, and not destroyed, by the new element.

I do not pretend here to write the history of architecture, but only to give an idea of the condition of the arts in Europe and a part of Asia, at a moment when the traditions of antiquity were about to un-

dergo an important change in spirit and in form. In the absence of existing monuments and distinct authority, it seems to me unnecessary here to enter upon the question whether the Visigoths and Lombards had arts peculiar to themselves;* for evident reasons I shall abstain from entertaining here ingenious but doubtful hypotheses on this subject. Why should we grope and speculate in darkness, when we can proceed confidently in the light of facts? The arts of the Latins of antiquity are perfectly known to us; those of the Byzantine Greeks have left visible traces at many points of the European continent; the monuments of the intermingling of these two arts are there before our eyes, and indicate plainly the elements of which they are composed; why, therefore, attribute to a barbarous people influences over art which could only have been exercised by a long series of traditions? A barbarous people, however intelligent we may suppose them to have been, could only possess arts after they had become civilized, and they could have become civilized only by the long practice of the arts which they had borrowed from their neighbors or found upon the soil they had occupied. In instructing themselves thus, they would have given new expressions and a new turn to their models, but they would not have invented; indeed, they would have approached their models as closely as they could, and if they had corrupted or copied them without skill, they would have done so unconsciously. I do not know of a single monument in Northern Italy which can be attributed to the Lombards; but if there exists one, I dare to affirm that it resembles a Latin construction, or that it approaches the Byzantine buildings in character. The want of skill alone, with which the types would have been translated by them, would have added a barbarous element to their work, in the ancient acceptation of the word, that is to say, a foreign element. But, if there exist no Lombard monuments, there are structures, raised by the Visigoths, which are deserving of note in the architectural history of the first mediæval centuries. But these are only

* Gregory the Great said of the Lombards: "Wherever they are, there is weeping and wailing; cities, castles, and fields are devastated, and the earth is made a desert." M. Léonce Raynaud, in his "Treatise on Architecture," seems to confound the Lombards with the people afterwards known under that name, who were in reality but that Latin population which had been overrun by the Lombards. This is but one of the equivocations of architectural history. Far from erecting churches, the Lombards thought only of destroying them. The few churches which were built in Upper Italy, during the dominion of the Lombards there, were the work of the Latin population, who in the midst of those melancholy days of invasion had still preserved the corporation of the *magistri comacini*.

Roman structures coarsely understood and badly executed. To attribute to the barbarians an expansive influence in the presence of the Latin traditions and monuments, which at that epoch were still extant in Italy and Gaul, and in the presence of those Greek Byzantine arts, which were then shedding a brilliant lustre over the world, is very much like maintaining that the Italian Renaissance of the fifteenth century was provoked by the Swiss or Westphalians.

But it is useless to dwell longer upon a question which, though decided in the negative many years ago by the strongest evidence, has for some unexplained reason been lately revived. In political history, the most important events — those which have exercised the greatest influence upon nations — are sometimes attributed to very slight causes; I always find it hard to believe such theories, and, when applied to the history of the arts, I reject them promptly and decidedly. The progress of the arts is deliberate, inductive, and logical; great results in this progress can only be obtained after large, consistent, and regular efforts, and by following perpetuated or revived traditions, the course of which, with a little investigation, can readily be discovered. If there are sudden revolutions and startling changes in politics, there are none in the arts, and especially in the art of architecture. A people makes new laws, or changes its religious creed, because a law is but a text, a creed reposes upon dogmas which at a given moment are admitted by civilization; but the arts, and architecture in particular, depend essentially upon traditions, manners, and customs, upon the resources of industry, and upon circumstances which human power can modify only after much study and many experiments. Europe became Christian, yet for a long time preserved the manners, forms, customs, and consequently the architecture, of pagan antiquity; but Christianity must change these manners, the soil of Italy, Gaul, and Spain must for centuries suffer tumultuous irruptions of barbarous hordes, Roman traditions must disappear, before the foundations of a new art can be laid, and, even then, they must rest upon the ruined monuments of Roman power; but, above all, it is essential that the ideas which are to create such revolutions should take a new course. Thus, at Byzantium, the degenerated Roman spirit was absorbed by the spirit of the Greek, which was more active and better fitted to receive Christianity. In the West, Christianity found itself in the presence of primitive, barbarous nations, and could influence them much more readily than it

had the old Roman organizations. If the letters and arts of that time were to be revived, Byzantium, or at least the spirit which emanated from the Eastern empire, must be the fountain-head of the Revival.

It is thus from the antique Greek spirit that the first elements of mediæval art were derived.

I have already had occasion to dwell upon the distinction between the Greek and the Roman spirit; the Greek reasoned, discussed, and investigated with tireless zeal; in philosophy, he was fertile in ideas, yet never settled down on a conviction; but, in the perfection of his intelligence, he perceived that this incessant unrest of the mind was dangerous; and so, as soon as he could persuade himself that a material thing, a form, was good, he declared that form immutable, an *order*. At Byzantium the Greeks exhibited the same contradiction, the same strange opposition between their instinct and their spirit; their instinct led them to give to plastic art a hieratic form, to fix material beauty so that the tradition of it might never be lost, while their spirit urged them into every walk of intellectual inquiry, to discuss the abstractions of philosophy and the dogmas of religion. Seated midway between the East and the West, the Greek was endowed, as it were, with double faculties: he cherished the beautiful in art, as an immutable principle, with tender and scrupulous care, strenuously when necessary, while he opened to modern times the boundless fields of physical and moral science, and of philosophic discussion. In the employment of the arts he remained antique, elsewhere his spirit was essentially modern. The Greeks, like all people who have been the leaders of civilization, were always inclined to place themselves in opposition to the nearest dominating influence. Thus the ancient Greeks, placed against the great immovable background of Asiatic nationalities, presented the image of movement, — of intellectual, philosophic, commercial, and artistic activity. But, on the contrary, when the political power of Rome was established among them, and they had nothing more to apprehend from that great power in their rear, — the enervating influence of the East, which to its most remote boundaries also passed under the yoke of the empire, — their position in the history of civilization was reversed; so that when finally the West fell into disorder and barbarism, and was enveloped in a profound darkness, which threatened to overwhelm the whole civilized world, they assumed the attitude of conservatives. Thus the Greeks, who, in the presence of Oriental immobility, made them-

selves Occidentals in spirit, at a later day, in the presence of western barbarism, became Orientals; so that, by becoming immovable in their turn, they might, through the stormy darkness, remain the guardians of civilization, humanity, and the arts. We are justified in proclaiming the Greek people, whether by instinct or by calculation, the great civilizers of ancient and Christian Europe. Through the Dark Ages of Europe, from the fifth to the twelfth centuries, they were the jealous and exclusive protectors of letters, arts, and industry, keeping them safe from all change in a sacred repository of faithful tradition, as if they thought, through that sad gap of history, to transmit intact to more prosperous times the accumulated treasures of knowledge. The very people who, from the time of Augustus to that of Constantine, had urged art into every path of caprice and fantasy, who seemed to have forgotten style and all its requirements, and who had lost the artist in the artisan, refinement of conception in mere elegance of mechanical execution, this very people, from the moment when they found themselves face to face with actual barbarism, not only paused in their path of decline, but, by a supreme effort, worthy of the highest admiration, returned to the pure sources of art, — the types; reconstituted those types according to the necessities of the time, established them on a firm basis, and availed themselves of the remnants of the powerful imperial Roman organization for protection while engaged in these labors of modification. While the emperor in the East remained the *Pontifex maximus* of the new worship as he had been of the old at Rome, while he was the chief of a doctrine, he remained also the chief of an art declared immutable as a dogma. It was in this depository, thus religiously preserved, that for many centuries the reviving West came to seek for the germs of its arts, its sciences, and its industry; when these germs were at length developed, the empire of the East, enfeebled by its long attitude of immobility, debauched and effete, was, in its turn, overwhelmed in the flood of barbarism; so true it is that, in this world, nations, like men, have a task to fulfil, and, when the work is done, they disappear forever.

I have endeavored briefly to explain how Greek art influenced the first mediæval centuries. It is now necessary to explain how this influence acted in the West, and how modern arts were thence developed. I have lately said that the Byzantine Greeks, after the establishment of the empire among them, retraced their steps and

abandoned the freedom which had distinguished their art since Pericles, to shut themselves up in hieratic forms in the presence of the barbarism of the West. No people ever understood style better than the Greeks; with them it was an affair of instinct, or rather of reason. But from the time of Pericles, and after the Peloponnesian wars, Greek art, while preserving its admirable mechanical execution, rapidly tended towards realism. Soon, absorbed in the irresistible power of Rome, the Greeks became the entertainers, the artists, the tamers of the Roman colossus. Comprehending at once that, even if they had been able to conquer and possess the East, they would have been powerless in face of the political organization of the Romans, they resigned themselves to the task of becoming the instructors of their rude protectors in the arts, in philosophy, and in polite literature; but while communicating to their indifferent masters all that they had most precious, their art naturally lost that delicate perfume which can exhale only under genial skies. A man cannot undertake to tame a barbarian (and, to the Greek, the Roman was barbarous), without becoming somewhat of a barbarian himself; and woe to the artist who yields to a master without sympathy for matters of art! The Greeks, then, very sensibly, did not amuse themselves by discussing questions of style with the Romans, for they knew they would not have been understood, and, while submitting to the rigorous conditions imposed by the Romans upon their architectural problems, they contented themselves with the more humble duties of the decorator; their aim was only to gratify the pompous taste of their masters, and to charm them, if possible, by a brilliant, if not elegant, execution. They did what was wisest under the circumstances: they obeyed, and tried to become Romans themselves. But when Christianity became the worship of the Roman empire established at Byzantium, the Greeks once more assumed their leading position in the arts. Preserving all that part of Roman architecture which was peculiarly Roman, the structure, they set about modifying the decoration in the manner already briefly indicated. In construction they allowed those bold essays which harmonized with their genius, but these essays were ever systematic, the result of calculation and reason rather than of caprice and fancy. Such a school, based upon principles severely observed, was naturally the best school for barbarous nations, especially when these nations were endowed with original genius and were not embarrassed by powerful traditions.

Charlemagne was the first who undertook to revive the arts in the West; but all that he could do, with the resources at his command, was coarsely to reproduce a few monuments entirely Oriental in their origin. He, however, proceeded to gather together artists and grammarians, manuscripts, stuffs, and furniture, from Byzantium or from Lombardy, which was then under the influence of Byzantine art, and thus introduced among the barbarians a knowledge of the productions of a high degree of civilization; this importation did not cease until the West, in its turn, was able to develop an art peculiar to itself. In order to form schools of artists, Charlemagne could only address himself to that class of men who, by the necessities of their profession, were students, that is, to the clerks. The Franks, possessors of the soil by right of conquest, were too much occupied with warfare, and with maintaining themselves in their domains, to think of the cultivation of the arts. The inhabitants of the cities were sufficiently employed with questions of their own self-preservation and defence; and, as for the peasants and slaves, their precarious state hardly encouraged the idea of devotion on their part to the study of art and the pursuits of peaceful industry. But the monks, who were comparatively tranquil and independent, soon formed schools of art, from which graduated not only architects, but sculptors, painters, and artisans. Thus, from the French monasteries on the banks of the Saone, the Marne, the Rhine, the Loire, and the Seine, emanated, during the three centuries from the ninth to the twelfth, the first notions of art in Western Europe, including Italy itself,* though there are those who maintain that it was in Italy that all the western arts, from the time of the Roman Empire, originated. But against this theory are arrayed the most authentic monuments and texts. Italy at that time was plunged in anarchy, exposed to every misery, and was not in a condition to produce architects, much less sculptors and painters. If convents or churches were required there, the Italians called upon artists of the Clunisian order of monks, or they availed themselves of the services of a few Greek emigrants who had been constrained to fly from their country. At the end of the tenth century the Venetians built the church of St. Mark: they adopted a Greek plan, an ornamentation executed by Greeks, and used columns and panels

* See the "Dictionnaire raisonné d'Architecture" of M. Viollet-le-Duc, articles ARCHITECTURE and ARCHITECTURE MONASTIQUE.

of marble which they had stolen from the shores of Greece, at that time exposed by the feebleness of the Eastern empire to the insults of pirates from every country. In the North of Italy, however, the Italians, during the tenth and eleventh centuries, raised some architectural structures; but in the remains of these edifices we find only indications of great indecision, feeble recollections of antique Roman architecture, mingled with features from the hands of Oriental artists. As for the southern parts of the Italian peninsula at this melancholy period, history gives us but little information. The Moors, established in Sicily, ravaged the coasts; and Rome, long since fallen in ruins, lived among the vast remains of her former glory, or, if she still built, it was only by putting together the fragments strown on every side; art had ceased to exist there. This ruined country, exposed for many centuries to continual devastations, without industry or commerce, the prey of all nations, separated as it was from the Eastern empire, and with no inherent principles of life, presented, indeed, the saddest spectacle. But, on the other hand, in the tenth century there was established between the East and southern and central Gaul an extensive commerce; Venetian merchants, who at that time were the courtiers of Europe, lived at Limoges, and corresponded with the East by way of the ports of the Mediterranean, and with the North by way of the western coast. Thus, during the tenth and eleventh centuries, the relations with Constantinople were of the most intimate character, and the arts of the West profited accordingly.

Let us now see among what populations and under what circumstances the arts of the East came to exercise their influence in the West. When the Goths, the Franks, and the Burgundians successively invaded the Gallic soil from the mouths of the Rhine to the shores of the Mediterranean and Armorica, they found the indigenous people everywhere practising Roman arts. But after having devastated the cities and the buildings, the new conquerors, when they found it necessary to establish and defend themselves, could only repair, to the best of their ability, the structures they had sacked, or imitate, in new ones, the constructions already existing. In the West, therefore, the Roman structure was never absolutely abandoned. But when, after the anarchy which followed the invasion, a sort of government was established, the taste for luxury soon affected the new possessors of the soil, and they desired to decorate

these rude structures, which were the last vestiges of Roman architecture; they then had recourse to Oriental artists, and in a still greater degree to objects which they could import from the East, such as furniture, stuffs, utensils, and jewels. While preserving, therefore, the western Roman manner, the sculptors and painters, after the time of Charlemagne, covered their buildings with ornamentation borrowed from these foreign importations. Thus a pattern of silk might serve as a model for the sculpture of a frieze; a casket or a dyptich might furnish the type for a bas-relief to decorate a capital or an arch-panel (*tympanum*). In this manner Roman architecture, at some points, assumed a new envelope, while at others the local traditions were loyally adhered to. During the ninth and tenth centuries, the Byzantine influence was very unequal in Gaul. At Perigueux, for example, at the end of the tenth century, a church was built entirely Byzantine in plan and form, but Roman in its decorative details; some years later, on the Loire, the Seine, and the Oise, monuments were erected almost entirely Roman in plan and structure, while their ornamentation was evidently inspired by the East.

The epoch, during which this mixture of Roman traditions and Oriental importations occurred in various degrees, is conventionally called in France *l'epoque romane* (Romanesque). But as there was as much variety in the union of these two elements in this style throughout Gaul as there was in the character of the various provinces composing that territory, it is well to designate to which we refer, whether we speak of the Romanesque of the West, that of the Rhone, the Saone, or the Marne, whether it is the Norman Romanesque, that of the Ile-de-France or the Romanesque of Poictiers. At the same time these different styles have an air of consanguinity which belongs essentially to the genius of Western Europe.

I have elsewhere * treated this subject with more precision, and in doing so I believed that my statement that there was a French mediæval architecture would never be contested by any one. It is clear that, in speaking of a French mediæval architecture, I referred to the western architecture or that of the Gauls, since, during a great part of the Middle Ages, France, properly speaking, did not exist. Not anticipating any discussion on this point, I took no precautions; I had heard that educated foreigners, who are not apt to accord to us what is not ours, recognize and study a French

* See the "Dictionnaire raisonné de l'Architecture française."

mediæval architecture; it never occurred to me to doubt its existence. But experience has shown that it is necessary to take up this question; if it concerned only our national vanity, I would not insist upon the existence of a French mediæval architecture, because art has no country; but it involves something more than a foolish sentiment of national vainglory; it is a question of life or death, of decline or progress, for western art. It is not a matter of mere polemics, to overthrow the doctrines, called classic, of the School of Fine Arts; but it is nothing less than the rehabilitation of a misunderstood phase of art, the product of western genius, fashioned for us and by us, through a long series of efforts and struggles, which, though pacific, are glorious enough to excite our admiration and sympathy. I have endeavored in these Discourses to explain the relations which have always existed between the genius of known peoples and their arts; in order to avoid doubtful phrases, I would state that, by peoples, I do not refer to populations included within certain political boundaries, nor yet to those agglomerations of men who have no mutual relationships of race or natural community of ideas, but to associations under the dominion of a dominating thought, moved by the same emotions, to associations between whose members there is an affinity of races and character. Antique and modern civilizations established themselves in two very different ways; and, as it is well always to have a distinct nomenclature in the physical as in the intellectual world, I would say that there is a *sympathetic* civilization and a *political* civilization. I call that civilization sympathetic which is developed in the midst of an agglomeration of men of the same race, or in the midst of races having certain mutual affinities. Such civilizations alone possess arts peculiar to themselves; and the Greeks furnish us with the most remarkable example of this form of civilization. I understand by political civilization that which is obtained by the preponderating influence of a people (sometimes of a mere handful of men), whether by reason of its arms, its skill, or its commerce, over vast territories occupied by races which have no consanguinity either between themselves or with their conquerors. Such is the Roman antique civilization. The Romans formed a body politic or administrative, rather than a nation; there was, in reality, no *Roman people*, for the commons who filled the streets of Rome, at least during the empire, do not deserve the honor of this distinction; there was a Roman organization, a Roman

government, — nothing more. Properly speaking, there was no art at Rome; there was, indeed, a very perfect organization of arts belonging to foreign *peoples*, but this organization, presenting as it did at every step the strangest contradictions, cannot be considered the true artistic expression of national genius. When we look around us in Europe, now more than ever before, we cannot but be struck with the extent of the influence exerted by various civilizations upon art. In the midst of invasions and political catastrophes, and notwithstanding the tendency of time and civilization to bring all things to a common level, we find the question of races and nationalities as ardent and lively as ever; and shall we, who of all the nations of Europe present perhaps the most striking instance of a civilization resting upon unity of sentiment, on the affinity of races which arises from a common habit of thought, shall we have no distinctive art? shall not this unity be expressed by a single visible sign?

The Romans, who required six hundred years to subjugate the Italian nations, became the masters of Gaul in less than half a century. This proves to us that there had long existed, among the Gallic tribes, notwithstanding the points of difference between them so clearly stated by Cæsar, a certain homogeneousness. Up to the end of the empire the Roman domination in Gaul was never contested, and certainly that domination could only tend to increase the unity existing between the various provinces of the West. Then the barbarians, various in language and manners, precipitated themselves upon the Gauls on every side; they established themselves in the territory, disputed the soil, waged wars among themselves, and for many centuries used every expedient to break the unity of the native tribes. The feudal system, also, which was established in a somewhat more regular fashion by the successors of Charlemagne, seemed made to divide, not only the provinces, but the domains; but meanwhile, after the eleventh century, we perceive the slow but persistent and continuous tendency of the various Gallic populations towards a national unity. These western populations, therefore, which the Romans designated as Gauls, had, like the Greeks, a peculiar genius; and since they were almost alone in the West in this respect, how could they be without peculiar arts? But, with singular inconsistency, those who were the first to recognize this constant tendency of the Gallic populations towards national unity, deny that they had their own arts; they do not attempt to explain, they merely infer,

and take great pains to prevent the public mind from being imbued with the idea of the existence of a French art, and present it as the ingenious dream of a few minds led astray by a mania for system. The energy with which this idea is rejected makes us energetic to discover the principal causes of such a strange opposition, — it shows us the importance of unveiling the truth, and leads to the inevitable inference that the idea thus opposed is one not easily to be rooted up. Among people who are not artists, the causes of this opposition to the idea of a French mediæval art lie in a vulgar dislike of all French mediæval institutions, as if the arts were the result of those institutions, instead of being the most vivid expression of the reaction of the indigenous races against the odious tyranny of feudalism; among the architects, the opposition is based on a false, irrational, incomplete education, and in their dislike for such studies as, leading them away from easy routine, require an incessant investigation of the truth, and a knowledge of our genius and instincts, judgment, in short, rather than formulas; in the habitual indolence of minds unaccustomed to use the reasoning faculties, it must be acknowledged that they have arrived at the point of regarding inspiration as mere fancy, instead of the result of profound calculation and of deliberate and thoughtful labor.

It is undeniable that the institutions of the Middle Ages left sad traces on the political history of France; but the native artists of that era were the first apostles of the enfranchisement of the oppressed classes; they were the first who were elevated by intelligent labor and the pursuits of science; the first who awakened mankind out of the profound slumbers of antiquity and the barbarism of the earliest Christian centuries. Their works are visible protestations against ignorance, wherever it existed. The cry of the oppressed must not be confounded with the cry of the oppressor, on the ground that in the tumult they cannot be distinguished from each other.

It is therefore in that corner of Western Europe which we call France, and there alone, during the Middle Ages, that we find the constituent elements of a national art, because there alone such elements were a part of the national character. Elsewhere there were cities, associations of merchants, political constitutions more or less complete, brilliant individualities; but nowhere else can we find a country tending towards nationality, moved by community of sentiments in the direction of intellectual unity or inspired by the same

common faith in the future. Thus it is particularly in France that the Christian idea as applied to the arts found the least embarrassment in its development.

But what is the Christian idea as applied to the arts?

Christianity, with its new worship and its new dogma, sowed, in the midst of the old Latin world, the seeds of incessant progress, of spirituality as opposed to materialism, of moral and political enfranchisement, of solidarity, of equality, of continual revolt against brutal force. The part played by the ancient Greeks in the presence of Asiatic immobility, till they were interrupted by the political power of the Romans, was assumed in turn by the Christians of the West; and as, among men, the same causes lead to analogous results, the arts of the West, though starting from principles opposed to those of Greek antiquity, were developed in the same manner, possessed an appropriate style based upon reason and investigation, flourished like them, and never paused till at length, from a progress by wholesome induction, they passed to caprice and fancy, and fell by abuse of their own principles. But, again like Greek art, the mediæval art of the West, although of short duration, has become an inexhaustible source of information for all who would consult it in modern times.

It has been reiterated so often that we Frenchmen are Romans, that we have blindly admitted the statement into our creeds. Because our language is derived from the Latin, because our laws are in part copies of those of the Romans, and because for three hundred years we have persisted in making very bad imitations of Roman monuments, we really believe that we are Latins. Let us examine this question. The Romans were not, and did not profess to be, artists; but, as has been repeatedly stated, all their artists were Greek; the Roman constructed, but he had no care for the form in which his construction was enclosed. And when he had settled upon a construction as good, it became, as it were, a law, which, even to the last days of the Lower Empire, continued to be observed with peculiar fidelity. The Romans never discussed questions of artistic principle; they were never enthusiasts; they were politicians, legislators, administrators; they were neither commercial, industrial, learned, nor philosophic; for every Roman philosopher and savant drew all his inspiration from Greek sources; they troubled themselves little about enlightening the human race or communicating

ideas and principles; they were content to govern nations and leave them as they were; they administered, but they did not civilize. Now, what was the case in the West, from the time when we emerged from barbarism up to the seventeenth century? Just the reverse: we were bad politicians, miserable legislators, and poor administrators; so far from governing others, we hardly knew how to govern ourselves. But, on the other hand, we find that schools were opened in Paris in the twelfth century, and all Europe flocked to them; we studied the Greek philosophers. It was at Paris, in the thirteenth century, that the encyclopædic movement began, and the movement has been continued down to our day; it was at Paris that learning first began to pierce through the darkness of the Middle Ages. There scholars and men of letters disputed on every occasion and on every subject; they reasoned, analyzed, wrote, and investigated ceaselessly. Finally, an art arose, cloister-bred, the issue of Roman traditions and Byzantine influences, — the Romanesque or round-arched style. Before long this was developed into a new style, the Pointed, practised exclusively by laymen; and this style, the daughter of geometry and of the newly discovered laws concerning the equilibrium of forces, was industriously pushed on, till finally it passed beyond the point of natural and healthy development. The inferior classes coalesced, and, by force or address, obtained privileges; then there arose among them merchants, agriculturists, mechanics, who covered a great part of Europe with the results of their industry. France at this period had, it is true, like the Romans, the spirit of conquest; but it did not have their spirit of tenacity with respect to conquests; for Frenchmen did not know how to live outside of their country and away from their national sympathies and habits. England is wherever the English are; but, for the French, France is only in France. The Romans made war only to insure and extend their material power, to colonize barbarous countries, and to enrich themselves. They stole from those countries, not only their products, their slaves, and their wealth, but such usages as they thought good; in exchange, they gave the conquered nations a protection, which was sometimes illusory, forms of government and administration, agriculturists, prefects, roads, bridges, canals, and buildings. France, on the contrary, took from her neighbors neither their customs nor their ideas, but often gave them her own. In short, if she is Roman, in what respect is she so?

Thus, dating from the eleventh century, Western Europe, although appropriating the works of antiquity and making them the base of all its architectural studies, began to produce a new style of art which belonged to it, and which was very far from being Roman. It is customary to assert that the Crusades exercised considerable influence over western art. But facts evidently contradict this hypothesis. The first Crusade took place in 1096, the second in 1147; and it was precisely in the twelfth century that the arts of architecture and sculpture in the West underwent a transformation indeed, but one which, so far from bringing them nearer to Oriental art, removed them farther from it. These questions, generally treated by amateurs and not by architects, have always been examined in a superficial manner; these authors have misused dates, have deduced sudden conclusions from appearances, and have theorized without investigation; the error has been repeated, and finally has been established as unquestionable truth. It becomes, then, difficult to enforce a new theory based upon a thorough study of the subject. Yet this is the task I have laid out for myself. This study we should regard as something more than a mere archæological question, and I shall not try to conceal that my real aim in pursuing it is, not only to explain the origin of modern art, but, as a consequence, its true path of progress. I believe this is the only way to obtain for this art a fruitful, free, and unrestrained development. It is a maxim which should be engraved in the hearts of all architects, that we must first know what we are before we can know what we should and can do.

No sooner was western art disengaged from barbarism, than it manifested tendencies opposed to the fundamental principles of Roman art. This movement began where the arts were practised after the Revival attempted by Charlemagne, — in the cloisters, and especially in the eleventh century, when the monks of Cluny had attained their greatest splendor. At this time these western monks sought, not only new combinations of plans, but a system of construction established upon laws which the Romans either did not know or did not admit. As for statuary and painted or sculptured decorations, these were frankly obtained from Byzantine motives. But, as regards the disposition of plans and construction, the western architects, even so early as the tenth century, aimed to con-

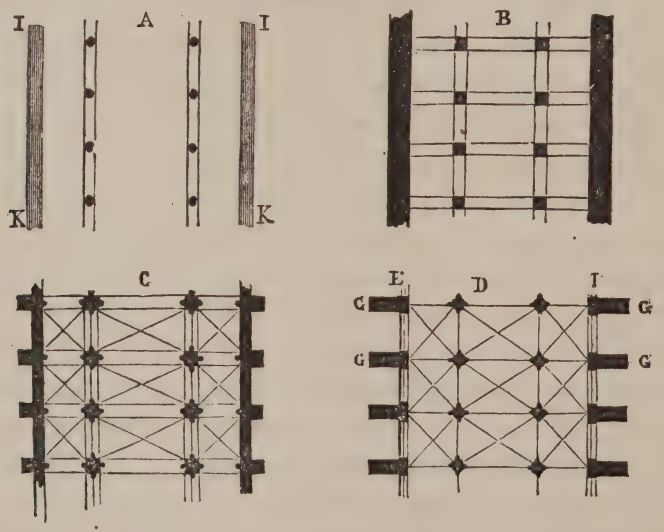
ciliate two conflicting principles, and thus entered at once into opposition to the laws laid down by the Romans. The Roman plan indicated perfectly whether the building was vaulted or covered with a wooden roof. If the edifice was vaulted, like the greater part of the Baths of Caracalla, the plan was solid; the masses of the structure were arranged in such a manner as to offer resistance to every thrust of the vaulting: it was a system of cellular construction. If it was not vaulted, it resembled the Greek plan, and was composed only of longitudinal walls and of points of support, which, as they bore only a vertical weight, were slender. The Greek plan was easy to trace, was simple, economical, and exacted but few materials. But the Roman plan required complicated and scientific combinations, and was very costly on account of the prodigious masses of material which it called for; according to the Roman method of construction, a building had to be erected with rapidity, thus requiring extensive resources of labor and transportation, and the establishment, on the site of the work, of a great depository of building materials. Neither the monks nor the nobles of the tenth and eleventh centuries possessed the immense resources of men and material which the Romans had at their command throughout the empire, and they were, therefore, constrained to abandon the Roman plans in favor of the simpler arrangement of the basilica, or of such unvaulted buildings as the Greeks were accustomed to erect. Yet it was not long before they recognized the utility of vaults, especially in the damp and changeful climates where they were called upon to build. The wooden roofs they had erected were destroyed by fire or rapidly deteriorated. The architects, therefore, while they desired to retain, both for their civil and religious structures, the simpler arrangement of plan to which we have referred, were soon entirely occupied by the idea of replacing the wooden roofs by vaults. Here, then, were the two conflicting principles for the first time brought together. I have elsewhere* detailed the numerous efforts of Romanesque art to conciliate them. It will be enough for our present purposes to indicate the principal results of these efforts. At first, a greater thickness was given to the longitudinal walls, to enable them to resist the thrust of the vaulting; but this expedient was soon found to be not only costly, but insufficient in constructions on a large scale. Next

* See the "Dictionnaire raisonné de l'Architecture française du X^e^ au XVI^e^ siècles." Articles ARCHITECTURE and CONSTRUCTION.

the thrust was divided by cross-vaulting so as to bear on certain points which were strengthened for the purpose by pilasters or piers built in the wall. Then, in order to leave the interiors free, these piers, to resist the oblique thrusts, were built upon the outside of the structure, which was equivalent to building a structure and making all the points of support independent, as it were, of the structure itself, like stays or props. Stability was then given to these exterior points of support by surmounting them with heavy weights in the form of pinnacles, rather than by enlarging their area or projection. By these successive experiments, results were at last obtained very different in character from the point of departure, and resembling neither the simple principles of Greek art nor those of Roman or Byzantine art.

A diagram will explain the transformations which the ancient basilica covered by a wooden roof sustained before arriving at the vaulted basilica of the thirteenth century (Fig. 24). A is the plan of

Fig. 24.



a Roman room or basilica, with a nave and two aisles, covered by a wooden roof. When the Romanesque architects desired to replace this roof by a vault, they gave, as in B, greater thickness both to the detached piers within and to the longitudinal walls. But these precautions were found to be insufficient; the walls spread, and the edifice threatened to fall. They then, as in C, instead of the continuous round-arched vault, established cross-vaulting, opposite the

Fig. 25.

thrusts of which they projected exterior buttresses. Then, finding that the longitudinal walls between the buttresses were useless, they arrived at the plan D. In reality, the edifice occupied only the space between E F. The buttresses G, to which were communicated all the oblique thrusts, were built on the outside. Thus the longitudinal walls I K of the plan A were cut into sections, and these sections placed at right angles to their original position; the same surface was thus occupied in plan by the solids, but the powerful lateral resistance presented by the last arrangement allowed the construction of vaults with impunity. All this seems very simple; yet it involved an entire revolution in the art of building, — it was a complete rupture with the ancient methods. Three centuries of successive trials elapsed before this new principle, whose consequences were capable of infinite expansion, was definitely established. While the system of construction was undergoing these modifications,* the forms of art were submitting to a corresponding revolution which is apparent to the most careless observer.

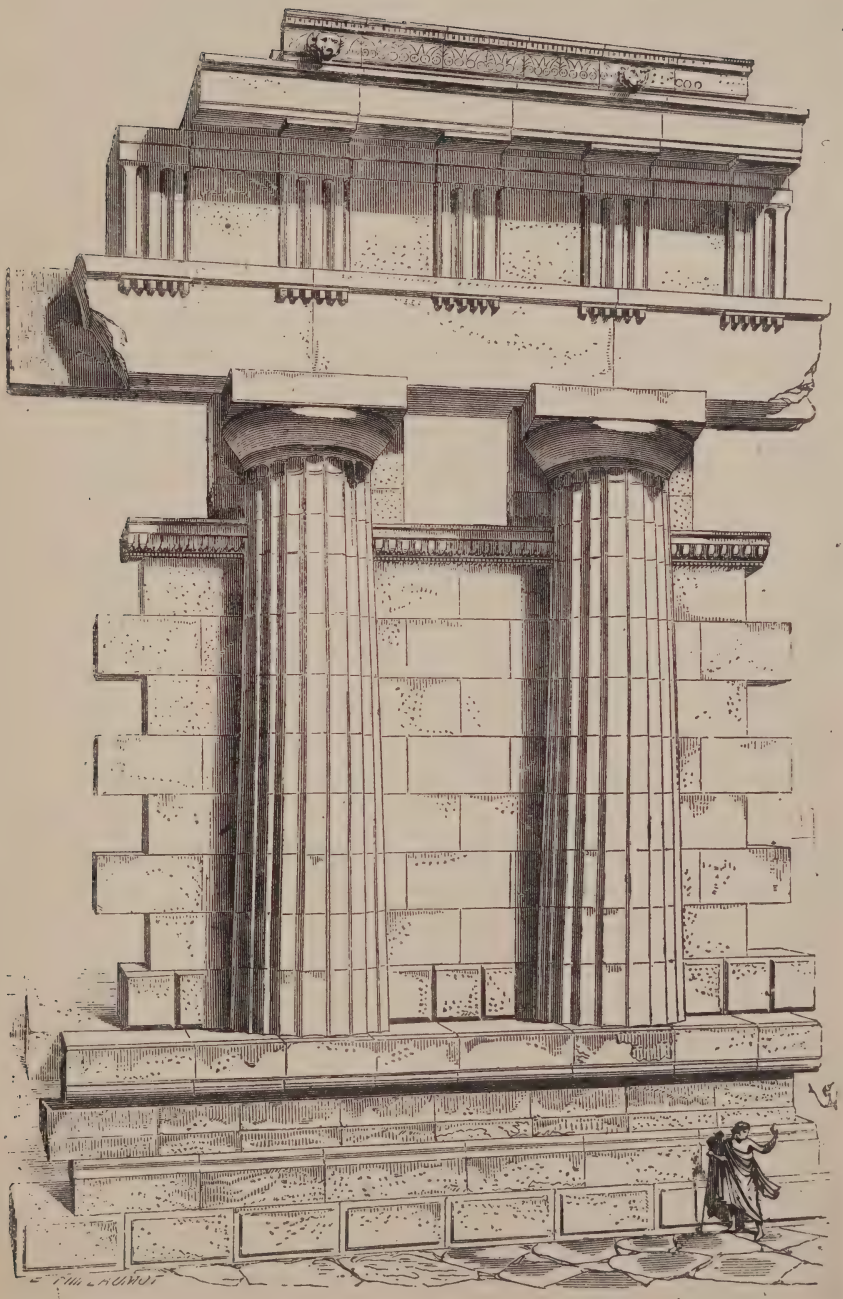
The Greek orders of architecture were the structure itself; they represented but one mode of building; the appearance and the structure of Greek edifices, therefore, were essentially one and the same thing. We cannot deprive a Greek monument of the order which forms its principal decorative feature without destroying the monument itself. It needs but a glance at a Greek ruin to recognize that the Doric or Ionic order, of which the architect availed himself, is the monument itself. The Greek orders are nothing more than the structure, to which have been given the forms best suited to the various functions. But the Romans, in the orders which they took from the Greeks, saw only a decorative means, which could be removed, interchanged, or replaced by something else, without the necessity of altering the construction of the edifice, which the orders were used to decorate. (I do not of course refer here to Roman temples built after Greek examples.) I believe I have already sufficiently explained this fact in Roman architecture. Yet the Romans, inspired by a positive and practical spirit, often recognized that this way of applying Greek orders to structures, dissimilar in every essential respect to Greek buildings, was unreasonable and false. They therefore, in a great

* I do not think it necessary to dwell here at greater length on the various transformations to which Western art submitted from the ninth to the thirteenth centuries, having explained their history in the "Dictionnaire de l'Architecture française," in the article CONSTRUCTION.

many of their edifices, such as theatres, amphitheatres, and palaces, *engaged* the orders in the building itself, that is to say, they built the columns up in the walls and used them as buttresses to give greater area of plan to those parts resisting thrusts, thus obtaining at the same time an exterior or interior decoration. But it must not be supposed that the Romans invented this application of the orders; the Greeks understood this principle of *engaged* orders, and frequently used it: one of the most remarkable examples of its employment by them is the temple, or basilica, of Agrigentum, called *of the giants* (Fig. 26). But I do not believe the Greeks ever thought of superimposing engaged orders, as the Romans did in the exterior of the theatre of Marcellus, in the Coliseum, and in a great many other structures. The Greeks, in using the engaged orders, were impelled by a different impulse from that which actuated the Romans under similar circumstances. The Romans simply used them as buttresses presenting a decorative form with which they were familiar. They built in one, two, or three stories, and piled one, two, or three orders on top of each other (Fig. 25), like superimposed piers or buttresses. But they reasoned so little in such matters as giving to an object the form suited to its attributes, that they placed on each range of these engaged shafts its complete entablature, as if each order was to be the termination of the edifice. Now if, in this case, the engaged columns, A, can be regarded as buttresses, and as presenting a utilized decoration, it must be admitted that the projecting entablatures, B, laid from the top of one column to the top of another, are rather injurious than necessary to the solidity of the structure, and that the leverage exercised by their projection can only weaken the construction of the wall. Here there is a want of fitness, and consequently of taste. It is bad reasoning, or no reasoning at all.* It may be said, if this decoration satisfies the eye, the real end of art is obtained. But there are rules imposed on architecture by the natural laws of statics, whose importance any one, even if he is not an architect, can recognize. Thus every one can see that a column must not be more slender at its base than at its summit. The eye instinctively admits

* But the Romans were not always so false to the true principles of architecture. Thus the two superimposed orders between the arches of the two stories of the arena at Nismes, on the outside, are treated like real buttresses, the lower order being composed of projecting piers, the upper of engaged columns; and the entablatures are used as a block over each pier or column, and do not, as in the theatre of Marcellus or the Coliseum at Rome, form continuous projecting courses, so clumsily and uselessly extending around the monument.

Fig. 26.



this without the intervention of reason, which only confirms, analyzes, and explains the instinct, just as written laws serve only to define the instinctive sentiment of good and evil, of justice and injustice.

The Greeks, on the other hand, when they engaged orders in the construction, proceeded on a true principle. As the order, with them, could only be the expression of the structure, if they desired to enclose the space surrounded by the order by building a wall between the columns, as had been done before them by the Egyptians and Assyrians, this wall was treated simply like a thick partition, whose only duty was to act as a screen, and not as a support. To use columns as points of resistance, piers, or buttresses, bearing the weight of an entablature with the roof, and then to shut up the intercolumniations with a light construction, a screen-wall, as was done in the great Basilica of the Giants at Agrigentum (Fig. 26), was to reason very wisely; but to treat the voids as if they were the solids, the screen-walls as if they were the necessary construction, and the buttresses as mere decorative features, as was done habitually by the Romans at a later day, was, with all due respect to the Romans and their infatuated imitators, very barbarous reasoning. But the Romans went even further than this in the broad path of absurdity; they built archivolts under the projecting entablatures of the engaged orders (see Fig. 25). I have already said that, in the eyes of a Greek, this would be considered the height of the ridiculous, or rather the mark of a complete misunderstanding of the forms of Greek architecture.

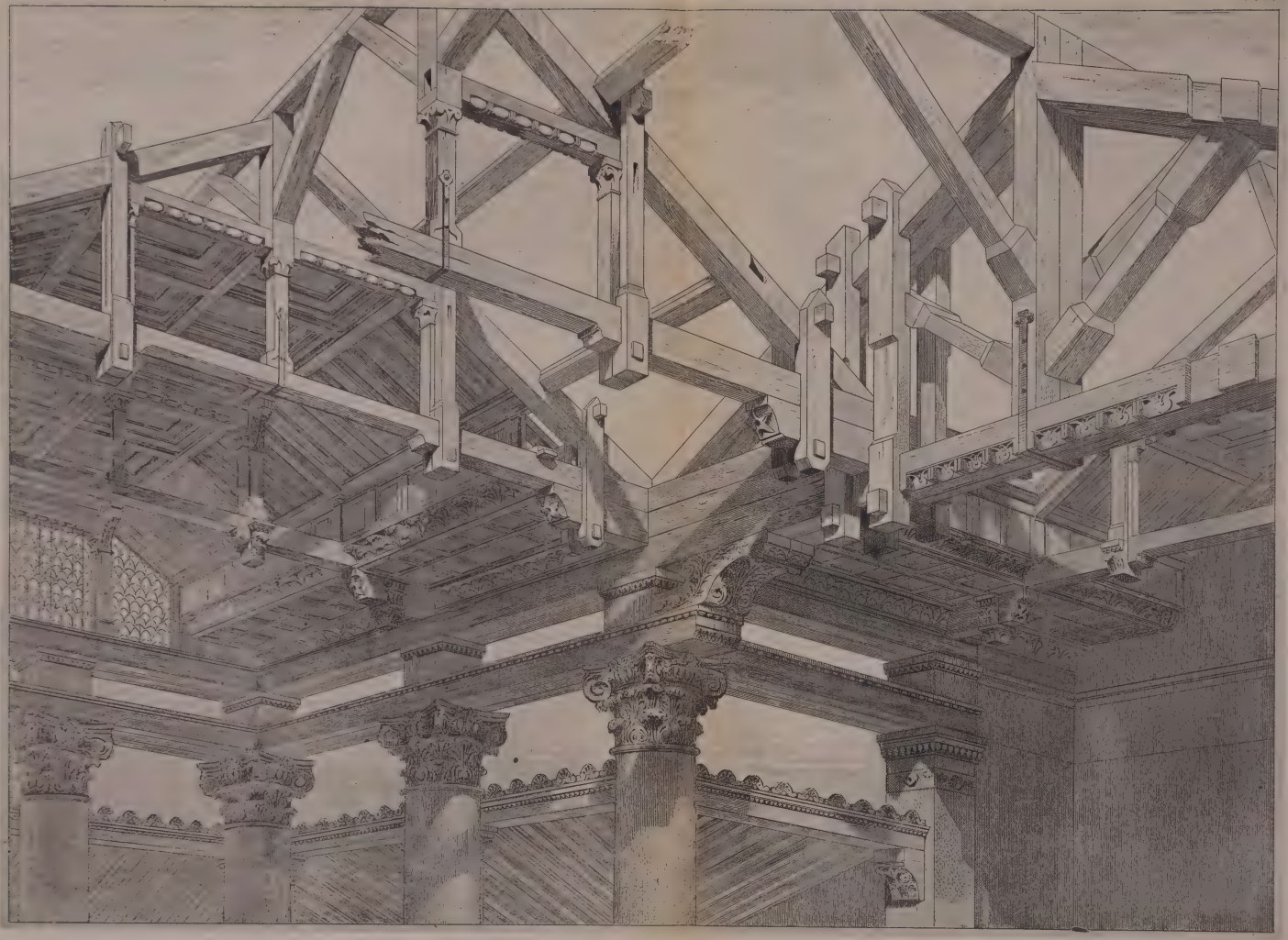
At the end of the empire, in the great edifices built by the Romans on the eastern shore of the Adriatic and in Asia, the architects began to start the arch directly from the capitals of the columns, without the intervention of an entablature in any form (Fig. 27). But this innovation was due entirely to the Greeks, who, whenever they could do so without disregarding the methods of construction employed by the Western Romans, always submitted their designs to correct and rigid reasoning.

But it is time now to throw a little light upon a very important question in the history of the art of architecture. We recognize a Byzantine art, and call it one of the new expressions of the active spirit of the Greeks; I have ventured to state that Byzantine art was a Revival. But where did the Greeks obtain the elements of this Revival? By what means was the Greek art of the time of

Pericles so transformed? If, under the empire, the Greeks were constrained, not only in their own territory but in Italy, to adopt the pompous taste of the Romans, how did it happen that, after the establishment of the Eastern Empire, they found themselves in condition to apply at once new forms to the Roman structure without any apparent process of induction and experiment? To resolve this question is to find the key of eastern as well as western mediæval art. Let us investigate the matter.

Fig. 27.

There is room to believe that, in their earlier days, the Greeks borrowed the elements of their art from Asia and Egypt; but, in the time of their greatest splendor, that is to say from the destruction of Athens by the Persians to the end of the Peloponnesian war,



THE BASILICA OF FANO.

CONSTRUCTION OF THE ROOF.

they carefully avoided taking any ideas from the Asiatics, with whom they were waging continual war. During this short but brilliant epoch, the arts of Greece were radiant, and their influence extended to the Bosphorus, and probably to a part of the coast of Syria, where, however, long before this glorious epoch of Greece, there had existed a powerful civilization, possessing arts which had all the energy of national youth. Phœnicia and Judea built, traded, and colonized long before the historic times of the Hellenic peninsula. After having stifled the last remnants of Greek independence, the Romans extended their empire over Syria and Persia; then the Greeks, their habitual warfare with the Orientals of Asia having ceased, became, by commerce, the natural medium between the Levant and the West; they performed the same part which, at a later day, the Venetians played between Asia and Western Europe. They found, in Syria, on the coasts of ancient Phœnicia and in Judea, arts to the development of which they had unconsciously contributed, but which preserved the traces of primitive grandeur to a much greater extent than their own; they also found there one of the sources from which the Romans, in the time of the Republic, had obtained the elements of their Etruscan art. This requires an explanation.

When Rome began to be of consequence in Italy, the people of Etruria already possessed a well-developed art; they understood the vault, — not the vault of concrete formed over a wooden model and hardened, but the arch made of hewn stones fitted together in voussoirs; they constructed with enormous blocks laid together without wedges or mortar; this construction, the issue of powerful traditions, they decorated with flat pilasters, disks, and mouldings, which were neither Egyptian nor Assyrian in character. Recent discoveries * have brought to light the remains of certain buildings in Judea, which, while they have necessarily close affinities with Phœnician arts, have also many remarkable points of resemblance to those of Etruria; in both we find the same construction, the same principle in the mouldings, the same kind of decoration, and, more important than all, vaults made of enormous blocks of fitted stones.

M. de Saulcy, to whom archæologists are indebted for these important, though disputed, discoveries, has been good enough to lend

* The monuments, to which we are about to draw the attention of our readers, and which M. de Saulcy has brought together and described, were, it is true, not discovered by him, as they have been long known. But to him is due the honor of having discovered their probable date.

me the collection of photographs and notes which he made in Palestine. If the archæological value of these documents may be contested, the exactness of the photography cannot be questioned; and for the architect who is familiar with the operations of the quarry and the stone-yard, and who knows how stones are fitted and laid, photography has all the importance of actual fact. This testimony discloses to us the remains of what seems to be the platform (*stylobate*), composed of colossal stones, on which was built the temple of Solomon at Jerusalem; and on one of the perpendicular sides of this platform appears the springing of an arch which formed the ancient bridge of communication between the temple and the palace. (See

Fig. 28.

Fig. 28.) This bridge was the one destroyed by the Jews when Pompey was besieging the temple of Jerusalem, 54 years B. C.* At

* "And without further delay [the party of Aristobulus] occupied the temple, destroyed the bridge which connected it with the city, and put themselves in position to defend it. The rest received Pompey, and placed in his power the city and the royal palace," [with which this bridge established a communication]. — FLAV. JOSEPH., *History of the Jews*, Book XIV. Ch. VIII.

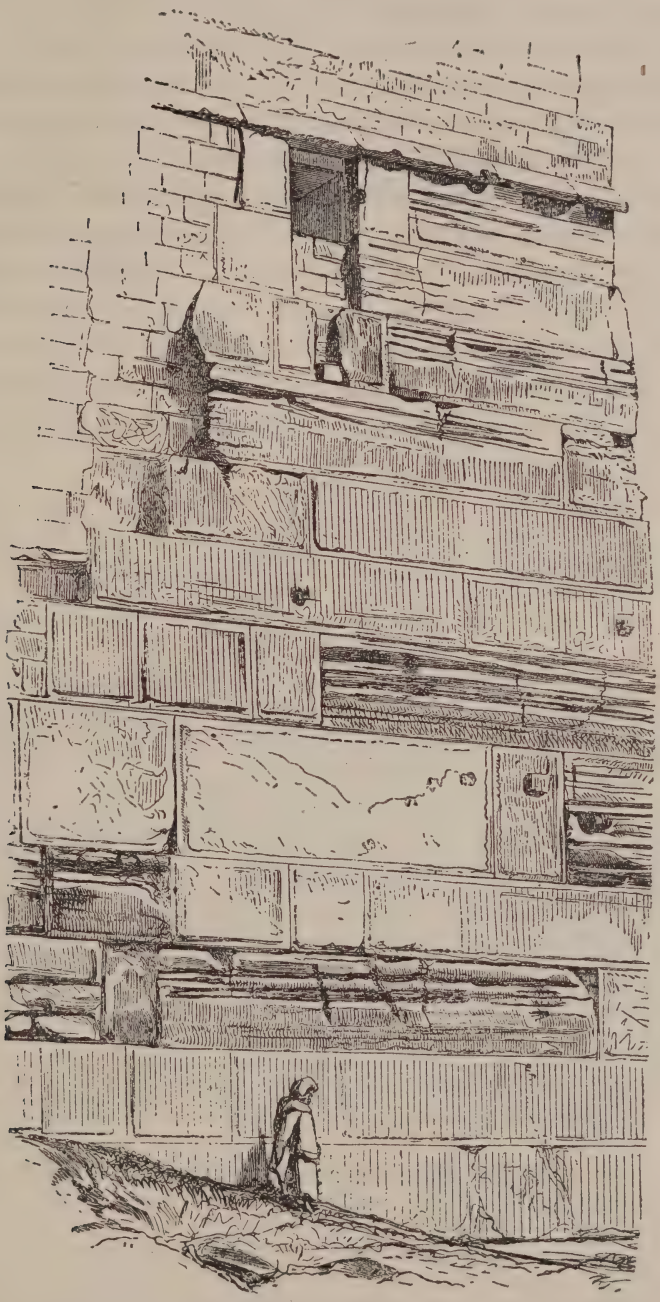
B may be seen, as M. de Saulcy admits, the restorations of the time of Herod, while at C is the wall built in the Middle Ages. Without pretending to join in the discussions which have been raised regarding the age of these constructions, I shall confine myself to stating what any one can verify. In the first place, the enormous blocks which compose this platform are taken from the limestone formation of the country, which is very hard and durable; it must be admitted that between the moment of laying these blocks and the present century a very considerable lapse of time must have intervened, as we observe that, although under a mild climate, these adamantine limestone blocks have been to a certain extent decomposed, or, rather, have lost their delicate laminæ, as indicated in Fig. 28. Again, the wall-masonry, B, is evidently Roman, and is built of the same stone as the arch-masonry, and the difference between the condition of the two constructions indicates plainly a difference of several centuries in their age. Then, in fine, these stones are not cut in the manner of the empire; their faces are coarsely hewn, and a deep chiselling may still be seen around their joints and beds (see Fig. 29), like those which exist in some rare remains of Phœnician masonry. These joints and beds are admirably dressed, perfectly true, and laid without mortar. "Titus," said Flavius Josephus (Book VI. Ch. XLII.), "having entered [into the city of Jerusalem after the siege], admired the fortifications among other things, and could not restrain his astonishment at beholding the strength and beauty of those towers, which the tyrants had been so imprudent as to abandon. After having attentively considered their height and thickness, the extraordinary size of the stones, and with how much art they had been joined together, he cried, 'God has indeed fought on our side!'"

If this arch and the walls which serve as its abutments do not date back to the primitive construction begun by Solomon, and continued for several centuries after him, it must be admitted that they are a part of the restoration or reconstruction undertaken by Herod under Augustus. What date, in this case, can be assigned to the later Roman constructions at B (Fig. 28)? They must have been executed by some one; but there is no evidence that, between the reign of Herod and the siege by Titus, the temple was either rebuilt or restored from its foundations, nor after the time of Titus does anything seem to have been done to it. We cannot, indeed, furnish

any certain proof that these stones were laid by Solomon; but it can hardly be doubted that they are anterior to the Roman domination, and this is what I would be contented to establish. I am well aware that in Syria, at Balbec, for example, there are many ruins of constructions built with gigantic blocks, which have been attributed to the Romans, and that, since the Romans employed this extraordinary structure elsewhere, it has been concluded that they must have been the authors of the masonry of the temple of Jerusalem. This argument rests upon an incomplete foundation. The basement (*stylobate*) of the temple of Balbec belonged to an edifice anterior to the temple built by Hadrian. The primitive constructions are not disposed towards the points of the compass, in the same manner as the Roman temple which surmounts them; and in the crypts one can plainly see where the Roman construction joins the primitive basement, which, like that of the temple of Jerusalem, is built of enormous blocks. These primitive crypts, or cellars, are vaulted, and the Roman vaults are built upon them. It seems not unreasonable, therefore, to attribute such masonry as that in the arch of the bridge of Solomon to the Phœnician epoch.

But it may be objected that to base an entire system or theory upon a fragment of such slight importance — upon two or three courses of stone, in fact — is at least hazardous. It may be so; but this fragment is not the only one; almost the whole base of the platform and a part of the enclosing walls of the temple of Jerusalem still exist, and at some points these remains are still of great height. Fig. 29 represents the southern face of this enormous basement, near its southeast angle. Is it possible that we behold in this a construction of the epoch of Herod the Great, — of that king so devoted to the empire, so closely connected with the Romans in all his interests; who built the city of Cesarea, consecrated to Augustus; who devoted his treasures to the construction of the city of Nicopolis, built by that Emperor; who, in fine, had himself visited Rome, and kept ambassadors there? Do we not, on the other hand, behold in this basement traces of an art primitive in every respect? Does not the wall, laid in retreating courses (*battering*), according to the method pursued by all primitive nations, indicate a very remote antiquity, and is not this enormous masonry, with its joints accentuated by deep chisel-draughts, are not these venerable stones, flaked off in their grain by the action of centuries, proofs of an age long anterior

Fig. 29.



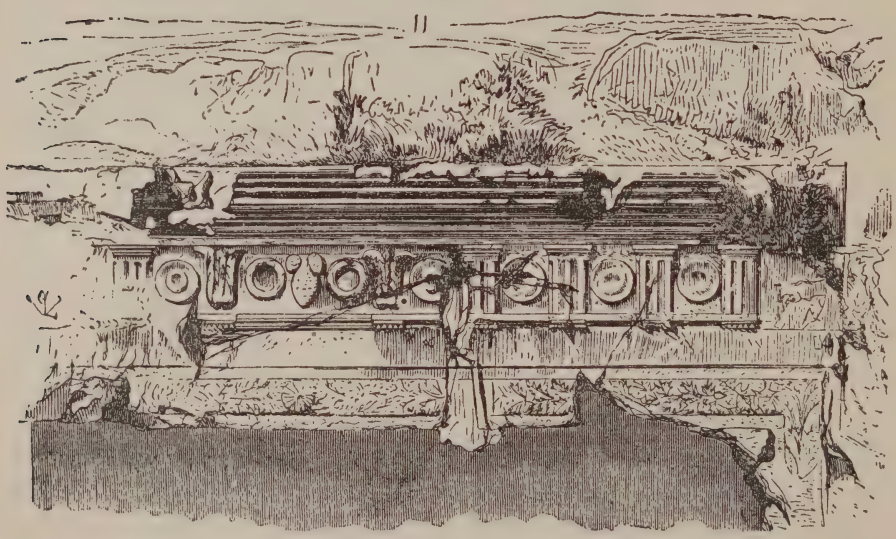
to the Herodian epoch? If this angle is admitted to be of the age of Solomon or his immediate successors, the fragmentary arch in Fig. 28 must be of the same epoch; for the stones, and the manner in

which they are cut and laid, are the same in this arch as in the other most ancient portions of the platform of the temple.

Now it can scarcely be disputed that the Etruscans, as well as the Carthaginians, with whom they had evident relations, are the remains of a Phœnician colony, from which the Romans of the republic obtained their first ideas in the art of building.

But the facings of the platform of the temple of Jerusalem are mere walls, without any appearance of sculpture; and if they do belong to a very remote epoch, as is proved by the dimensions of the blocks, the manner in which they are cut, and by the fact that their masonry has numerous *décrochements*,* there is nothing here to indicate a contemporary *art*. There are, however, in the neighborhood of Jerusalem, quite a number of tombs cut out of the natural lime-

Fig. 30.



stone formations which cover a great part of Palestine. M. de Saulcy maintains that these tombs date from the epoch of the

* It is worthy of note that all primitive masonry is either *cyclopean*, that is to say, composed of irregular blocks as they came from the quarry, but reduced to a common level on their exposed faces, or *décrochés*. A wall is *cyclopean*, when the stone of which it is composed is quarried with faces not parallel; but in countries, like Judæa, whose calcareous rocks naturally occur in parallel strata, it is clear that the builder must lay his blocks in horizontal courses. But as the natural strata are of unequal height, the thinner stones, in workmanlike walls, must be wedged up to a common horizontal level with the thicker ones in the same course, — an operation (*décrochement*) requiring more experience than very primitive builders possessed. By these indications, therefore, we can always discover whether a wall belongs to a primitive civilization or to a civilization advanced in the practice of the arts.

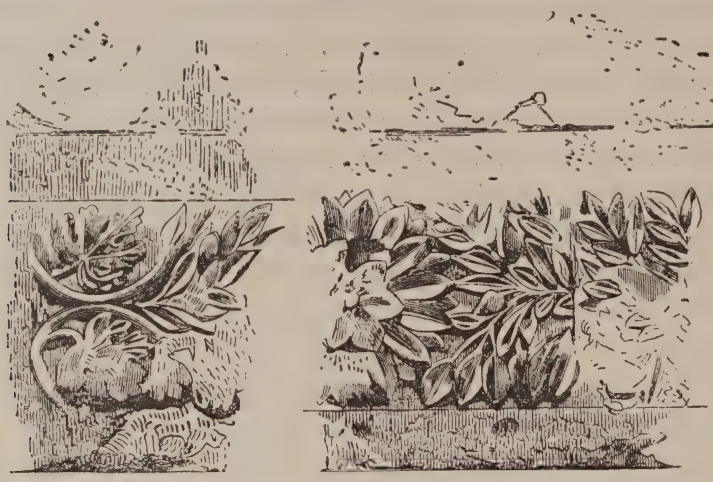
kings; his opponents attribute to them a much more recent date. But, first, it was not the custom of the Romans, under the empire, to cut their tombs in the living rock; second, even in the time of Constantine, tradition, which should always be consulted, referred them to the Judaic epoch; third, the architectural style of these caves (*hypogæa*) is foreign to Roman art. Let us take, for example, one of the most important of the tombs, that of the kings (Fig. 30), which, in certain forms of its architecture, and even in certain details of its mouldings, bears the closest resemblance of any to the Roman art of the empire. The two supporting piers, indicated at A, are destroyed. We behold here, it is true, the triglyphs of the Greek Doric order; but why may not the Greeks, primitively, have borrowed this detail from the Phœnicians or Jews? The sculptured palms, garlands, disks, grapes, and especially that great carved square frame, to which the entablature serves as a crowning member, are ornaments which are neither Greek, Assyrian, nor Roman. A detailed examination of this sculpture reveals to us, even in a more emphatic manner than the general design, the idea of an original

Fig. 31.

art. Observe (Fig. 31) this fragment of frieze, with its triple palms, the angular way in which they are cut, its bunches of grapes, and its crowns, suspended by knotted cord. See again (Fig. 32) these fragments of the frame, composed of olive and vine leaves. Neither Greeks nor Romans, especially the later Romans, ever executed

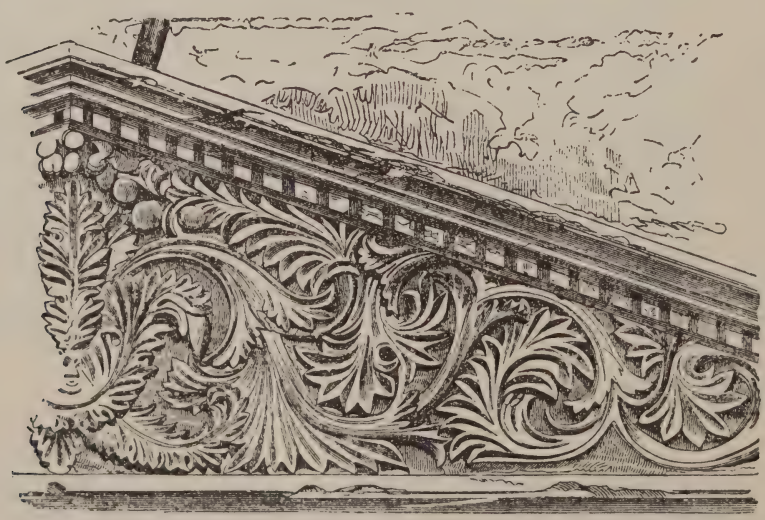
sculpture in this style. Fig. 33, a fragment of a pediment surmounting the opening of the tomb of the Judges, also cut in the rock, is an example imprinted with a character even more original.

Fig. 32.



If there is anywhere in the world a style of sculpture which has any relations with this, it is evidently the Byzantine sculpture of the fourth, fifth, and sixth centuries. Can it be pretended that these

Fig. 33.



rock-cut tombs date from so late an epoch as this; and, if so, for whom and by whom could they have been made? But if it is admitted that they are anterior to the fourth century, and they are

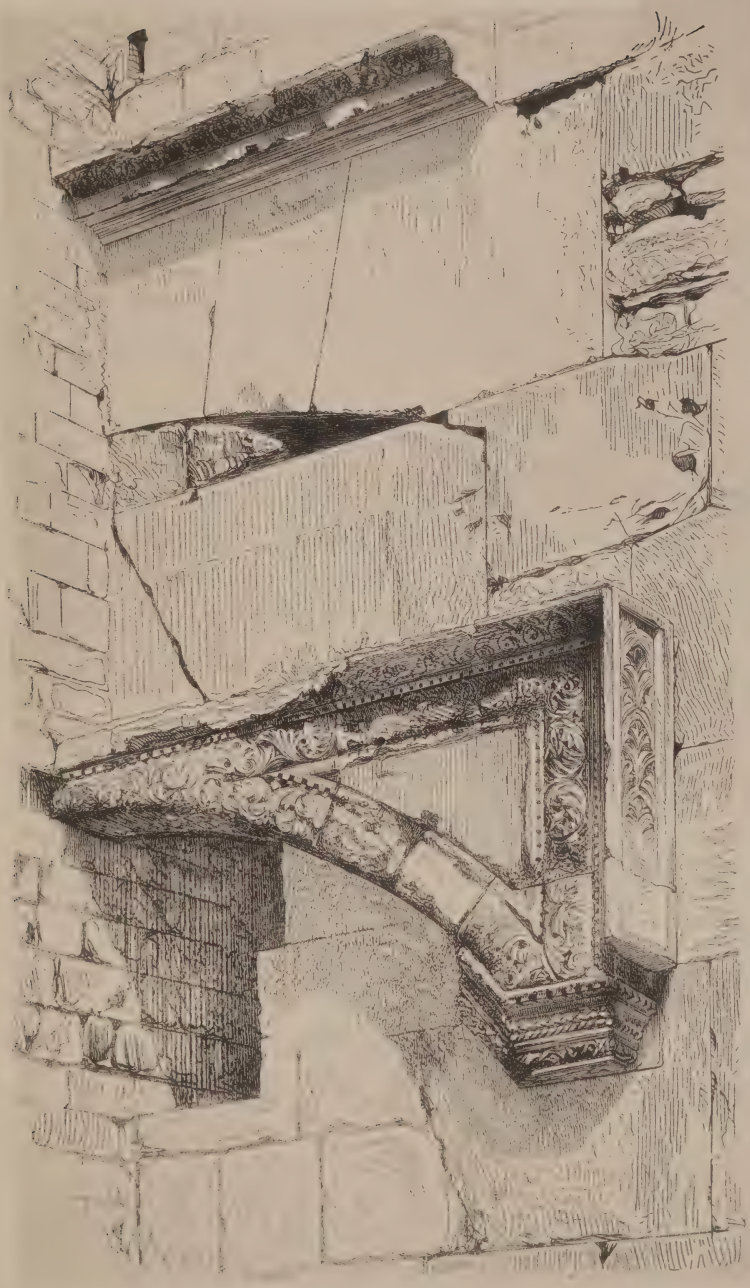
attributed to an epoch no earlier even than that of Herod, it is evident that the Byzantine Greeks borrowed a great deal from them. The total absence of all representations of men or animals in these sculptures is worthy to be noted; and all the tombs exhibit the same character of workmanship, — a dry, precise, flat but sharply cut method of execution, full of character, and at the same time presenting a carefully studied design, and what may be called a *primitive* touch of the chisel; all these are qualities entirely distinct from those of the sculpture of the Lower Empire, which is soft, clumsy, of high projection, and great monotony in treatment; in a word, quite destitute of style, and indicating an effete art degraded in design and debased in workmanship. Artists, to whom I would especially appeal in this matter, can have no doubt regarding the primitive character of the sculpture of the rock-cut tombs of Palestine.

But it can be said, with some show of reason, that these tombs may date no further back than the era of Herod the Great, since Flavius Josephus, in his "History of the Jews" (Book XI. Chap. XIV.), referring to the reconstruction of the temple of Jerusalem by that prince, says: "The architecture of the porticos is very similar to that of the rest of the temple; between its columns is hung tapestry of various colors embellished with purple flowers, and in the cornice hang branches of golden-vine with *clusters* of *grapes* so exquisitely worked that, in them, art seems to vie with nature." Now Herod, in the rebuilding of his temple, employed Asiatic artists, who possessed their own art traditions, with nothing Roman in them. When we remember with what care Flavius Josephus endeavors to impress upon us how extremely jealous the Jews were of their nationality, and how promptly they rebelled against every foreign influence, we can readily understand that Herod, desirous of preserving that popularity which had been so weakened by his unfortunate effort to introduce Roman feasts and usages into Judea, would cautiously avoid imposing a foreign art on the construction of the temple. Even, therefore, if the tombs of Jerusalem could be referred back to no earlier date than the time of Herod, they still, for these reasons, would have had the evident mark of a local art; and this is sufficient for our purposes.

It is important for us to follow still further the chronological classification of tradition, and to consider more particularly the constructions of the time of Herod the Great. We know that he restored

or, in great part, reconstructed the temples. After him there is no evidence that the temple was touched till the time of its destruction by the army of Titus. This conqueror razed the city, and is said to have left but two towers standing; he made a solitude there, and it was not till the time of Hadrian that the Jewish city was repeopled; but it never again arose entire from its ruins. It is easy to comprehend that, however ardent these destroyers of cities may have been, they had every reason to be discouraged in the presence of those monstrous walls whose fragments have been given in Figs. 28 and 29. The prophecy, "There shall not remain one stone upon another," was difficult to be accomplished by the hand of man. Thus, there remain not only considerable portions of the platform and primitive enclosures of the temple, but some fragments of sculpture; and, at many points of the enclosure, we can recognize perfectly the remains of constructions subsequent to the gigantic masonry of which we have presented drawings, and these remains are evidently Roman in structure and can only belong to the reign of Herod. It is fortunate for the history of art that, of this enclosure, there remains a gate decorated with sculpture, and, although this sculpture and the architectural forms belong to an art much more advanced than that of the tombs in the valley of Jehoshaphat, yet they bear the imprint of that *original art* whose existence it is so important for us to establish. In Fig. 34, which, like the preceding figures, is after a photograph, I present a view of what remains of this gate, a fragment which can only be attributed to the Herodian epoch. The gate was probably closed up with mediæval masonry. It is in every respect foreign to any Roman art. It is composed of a delicate arch, decorated with very fine sculpture, placed under a lintel which is relieved by a discharging arch above. It is worthy of remark that this lintel still presents, like the blocks of the platform of the temple, a very large chisel-draught around its edges, and in the middle a projecting face. The masonry is well dressed and laid in close joints without mortar. If these sculptures are of the time of Herod (a fact not easily disputed on account of their position), the celebrated gate, called the *Golden Gate*, is evidently of the same time, for its sculpture has the same character. M. de Saulcy does not hesitate to consider this gate one of the works of Herod. The construction of the imposts is very Roman in character; the two enclosing arches are of slight projection, and the sculpture is admirably treated, preserving always, however, a

Fig. 34.



distinct Judaic character. Fig. 35 presents a detail of this sculpture. The acanthus leaves of the capital, with the sudden bending over of their tops, have a firmness and vigor of execution such as was never exhibited in any sculpture of the Lower Empire. These capitals are not surmounted by an entablature, but the archivolts start directly from them, as in the gate of the enclosure of the temple. The ornamentation is well undercut, precise, and delicate, and, though possessing more energy, singularly recalls that Byzantine ornamentation, which may be seen in the capitals of St. Sophia, and which appears in so many articles manufactured at Constantinople, from the sixth to the twelfth century, such as diptychs, covers of manuscripts, ivory caskets, etc.

In fact it is not rash to assert that the Greeks, disgusted at the degradation of art at the close of the Roman Empire, finding themselves in constant communication with the people of Syria, and inspired by the true Greek spirit, which forbade them from retrograding to their own antique art, seized upon these new elements, and turning their backs upon the West, which did not comprehend them, set themselves to fashion, from these Asiatic precedents or suggestions, a new art, — a Byzantine art. The appearance of the sculpture and its treatment make this fact very evident to my eyes; yet I desire that it should be equally so in the eyes of my readers.

The fragments to which I have just referred belong either to the time of Herod the Great, to that of Hadrian, or to that of Constantine. Although the Roman art of the epoch of Hadrian had a tendency to approach the ancient Greek types, this tendency was limited to a more careful execution, without sensibly modifying the general character of the architecture. Examples of this occur even at Jerusalem, not only in the fountain called of St. Philip, but in various other remains which are as Roman in their details and general effect as are the structures of Rome itself. It certainly cannot be maintained that these gates and rock-cut tombs (which are plainly expressions of the same art) are of the time of St. Helen. With Roman art under Constantine we are very familiar; in regard to execution it had reached the lowest depth of degradation; and if the architecture of Constantine in Syria is distinguished from that of Constantine in the West, it is because in the former country there existed a brilliant school, and our argument in favor of the influence of the Syrian arts upon the works of the Greeks remains intact.

The Greeks adopted Christianity with ardor; this was natural, as Christianity had been presented to them by their own philosophers. They were therefore the first to repair to the holy places where the new religion was born; this, for them, was no tedious pilgrimage. But when Christianity was developed in the territory of ancient Greece, their communications with Palestine became frequent and necessary; and, when we consider their quick and sensitive natures, we are not surprised to find them drawing the elements of the new Christian art from the fountain-head of the religion itself. Both the archæological and moral aspects of the case, therefore, admit the hypothesis that Byzantine art obtained some of its decorative elements from Palestine. I am aware of the prejudices against this; none of us can forget the opinions of Voltaire concerning the Jewish people; but this philosopher had not the most remote idea of the nature and value of the primitive arts of Syria, and the very energy he employed to lessen the importance of the Jews, and to render them ridiculous, should put us on our guard against his ideas on the subject; we are not apt to take such great pains to destroy that which really has no foundation, and the very bitterness of Voltaire against the Jews is a negative proof of their actual importance in history.

The Greeks were always distinguished for their aptitude to appropriate to their own uses the elements which they obtained from others. They were the most sublime of pirates, throwing into their crucibles everything which they could lay their hands on, things and ideas, to develop thence a Greek result and show to the astonished world a production not to be questioned, but to be received. In the presence of the innumerable hypotheses, more or less ingenious, which have been uttered regarding the origins of the Grecian arts of antiquity and of those of Byzantium, which are so much nearer to us, and so much easier to analyze, in the presence of all the suppositions which have been raised since archæology has become a science, I do not pretend to have indicated, in these few lines, the only trace of the origins of Byzantine art; I have limited myself to noting the facts. When the Romans stifled Greece under their powerful hand, Greek art became a trade, and Roman art planted itself everywhere on that classic soil; and although the monuments built there from that time were undoubtedly more perfect in execution than those of Italy, Gaul, Spain, or Germany, they were nevertheless Roman monuments; and this is so evident, that, in

Fig. 35. (fig. 16)

Attica, for example, the most casual observer, he who is least familiar with architecture, turns involuntarily from them, notwithstanding the seductive purity of their execution, to contemplate those indigenous fragments of Greek art which will never cease to delight and instruct the world. From that day, then, to the establishment of the empire at Constantinople there is no trace of a Greek art; if it accomplished anything, it was done in obscurity; then suddenly we behold at Constantinople the arts of architecture, sculpture, and painting take a new flight, assume new forms, develop new principles, and affect a distinct character. The Greeks must have found these new elements somewhere; and we have seen that the only monuments presenting — at least in their decorative principles — striking analogies to Byzantine art are in Palestine, on Jewish soil. We have also seen that, notwithstanding all opinions to the contrary, these monuments are anterior to Byzantine art, properly so called, and that, during the last three centuries of the empire, the Greeks, formerly waging continual war with the Asiatics, were as constant in their friendly relations with them. The inference from all this is obvious. Even if we attribute these Judaic monuments to so late an era as the last Roman epoch, to a time subsequent even to the age of Augustus and Herod the Great, yet, as they bear no resemblance to the real Roman architecture of that period, either in general effect or in details, they imply the influence of a local art, and consequently of an anterior traditionary art.

Thus we turn in the same circle, and are compelled to recognize that in Syria there was, at the Phœnician Judaic epoch, an indigenous art, which was not the art of the Assyrians, nor of the Persians, nor yet the primitive art of the Greeks. It is true that we find some traces of this art in Roman monuments at Balbec, Palmyra, and throughout Syria, but the construction and decoration of these monuments are Roman in execution; their mouldings are covered with ornaments, and these ornaments are always Roman. Byzantine art, properly so called, could not have been developed from an art rapidly falling to decay, for never was a Revival erected from corrupted types; only primitive sources can furnish the energy for a long career. I will not undertake to say that the Greeks obtained from Judea alone the new elements of Byzantine art. Perhaps every known part of Asia contributed its share to the result. But I content myself with the statement of this fact, that Byzantine art had no

essential resemblance to the Greek antique, and that it mingled with the Roman architecture of the West certain new principles, some of which we find distinctly written upon the ancient soil of Judea.

But what were these new principles? The Greeks, who, in antiquity, had invented the orders, or, at least, had given to them their appropriate proportions, seeing how they had been misused by the Romans, rejected them. They had recourse to other principles; the orders, which could only exist with the lintel or horizontal entablature, were regarded by the Greeks as inconsistent with the introduction of the arch into architecture; or if they used the lintel at all, it was only admitted under the arch. The columns lost their character as an *order* imposing characteristic form on a monument, to assume the secondary position of the vertical supports of wall apertures, rigid monoliths bearing open arches in thin walls. They often adopted the square pier or isolated pilaster instead of the column, as may be seen in the great lateral bays of St. Sophia, at Constantinople.*

The cornices of great projection belonging to the Greek and Latin orders were abandoned, to be replaced by bands (*string courses*) of flat profiles, the bold horizontal projections, from this time forward, being confined to the crowning member of the edifice. The orders laid aside, the proportions of the columns, as well as their capitals, became arbitrary. Carrying Roman construction to its utmost limits, the Greeks finally arrived at the point of considering walls simply as open or close screens or partitions. Structure resided only in the reciprocal abutment of vaults, resolving themselves into thrusts and bearings upon certain isolated points or piers sustaining the vaults. This kind of construction was very frankly developed in the great church of St. Sophia. Byzantine art was not, therefore, as has been pretended, a sequel of the decay of Roman arts. It was an art which pushed to their utmost development the principles of Roman construction, and, abandoning Roman decoration, brought together and, with Greek intelligence, applied new decorative systems, true in character and more consistent with these principles. It was an art, not in decline, but rejuvenated and invigorated for a long career of progress, in the course of which it was to become the parent of principles hitherto unknown.

* See also the two pilasters, placed outside the church of St. Mark, at Venice, on the side of the Piazzetta, and which, according to tradition, came from St. Jean d'Acre. They appear to belong to the first Byzantine period, and their faces are covered with foliage.

I have said that the Nestorians, after the condemnation of their chief, took refuge in Syria, in Persia, and Egypt; their sect at length spread into Asia. They carried with them the principles of the Byzantine Revival. For them, the Virgin was the mother of Christ, but not the mother of God. They saw in Jesus Christ two natures, one divine, another human. This heresy tended to do honor to Divinity, not by the representation of His incarnation, but of His works. The Arabs, who availed themselves of the arts imported among them by the Nestorians, carried this doctrine still further, and forbade the imitation of any animated beings whatever, either in sculpture or painting. Art, thus circumscribed, relieved itself by the use of flowers, material objects, and geometrical combinations in its decoration. The study of geometry became then, among the Arabs, the principal element, not only of the architectural structure, but of its ornament. In this manner, Greek art, transported by the Nestorians, was removed as far as possible, both in form and principles, from its ancient types.

The West, beginning to cultivate the arts at the time of Charlemagne, thus found itself in the presence of three principles, to which it could refer for precedent and instruction. It possessed on its own soil the remnants of Roman art, it borrowed all that it could from Byzantine art, and yielded to the influence of the Arabic modification of Byzantine art which came to them through intercourse with Spain, Syria, and the African coast.

Latin by virtue of its ancient traditions, Gaul, as I have already said, was hardly Latin in the nature of its genius. It was seduced by Byzantine types, and was attracted by the Arabs to the study of the mathematical sciences. As early as the tenth century its architecture manifested tendencies far in advance of the practical means at its disposal. Barbarism, although it appeared in the execution, did not exist in the conception. In the works of that period we can recognize the efforts of accomplished artists, but seconded by rude and unskilful artisans. The principles developed even at that early period differed entirely from those of the Greek architecture of antiquity and from those of the Roman architecture of the empire. Thus the Greeks employed the orders as an expression of the post and lintel; the Romans employed the vault and used the orders as a feature independent of the structure. The Byzantines advanced a step beyond these; while they aimed to give to the orders,

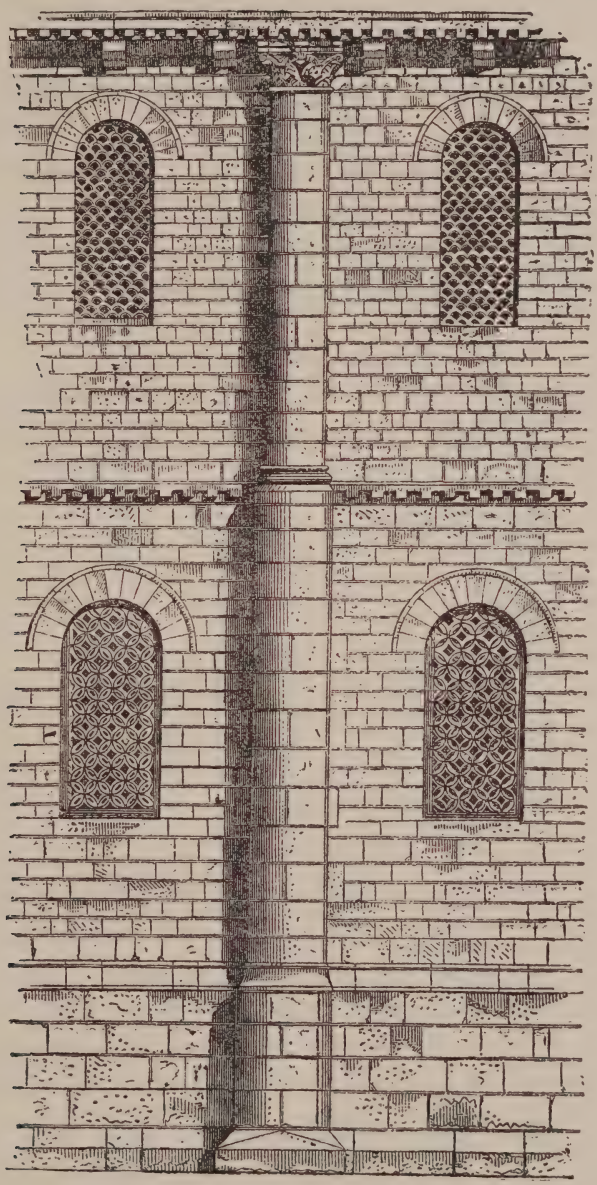
or rather to the column, a true and useful function in their vaulted edifices, it was used simply as an accessory member, in supporting the arched openings of a purely Roman wall. But the western architects, when their Romanesque architecture was developed, intimately allied the column to the structure of their edifices; they made it an indispensable member, but in doing so they were constrained to disregard the proportions of the antique column. They considered it only as a vertical support, to which they gave greater or less height according to the function it was called upon to perform, without regard to those fixed relations between the diameter and height that were established by the ancient *orders*. This was indeed a disobedience of the ancient laws of art which would not be tolerated in the modern academic schools; but are there no other laws in the world, that these cannot be disregarded without falling into barbarism?

We have seen how the Romans superimposed engaged columns in buildings composed of many stories, and how, when their columns performed the function of buttresses, the entablatures associated with them, by the leverage their projections exerted on the mass of the wall, had a tendency to cancel the effect of the columns as buttresses and to render them useless. Now in the West, on the other hand, as early as the tenth century and perhaps earlier, the architects entirely suppressed the intermediate entablature of these superimposed orders, and, instead of two, three, or four columns which the Romans would have placed one on top of the other, they used a bundle or sheaf of them undivided in height, or a single great column, or a single cylindrical buttress, possessing but one capital with an entablature at the summit of the edifice. If there were several stories, these were indicated by bands or string-courses interrupting the columns, which arose from the base either indefinitely elongated or in retreat at each successive story (Fig. 36).* Thus from correct reasoning resulted a new principle. We have already seen that, among the ancient Greeks, when two orders were superimposed, the upper was but the prolongation of the lower columns; as, for example, in the Temple of Neptune at Pæstum, that of Ceres at Eleusis, etc. (Fig. 37). The Greeks thus felt that two superimposed orders should form one whole, should have a perfect mutual connection, should be and seem to be but two stories of the same structure, and not two structures placed on top of each other. The Romanesque architects of the West

* Ancient part of the church of Saint-Remy at Rheims.

knew nothing about ancient Greek architecture; they knew only the arts of Rome and Byzantium; but, reasoning from their own point of view, they arrived at the same conclusion as the classic Greeks,

Fig. 36.

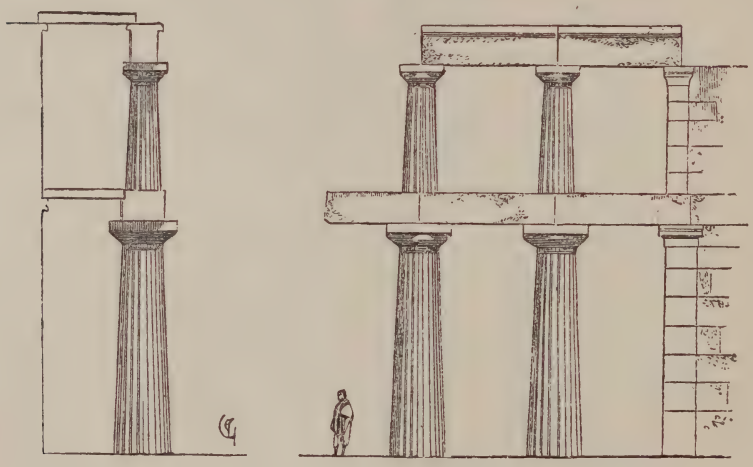


that a building in several stories should not be treated like several buildings on top of each other. Thus, in the process of sound reason-

ing, they destroyed the Roman orders. The whole question, therefore, is whether the consequences resulting from sound reasoning are worth the loss of an order the use of which is based upon false reasoning. Availing themselves of Roman and Byzantine arts, the western builders gave birth to principles of their own; and if they betrayed irresolution in their choice of forms during the Romanesque period, they showed no indecision in the application of principles which were the issue of a judgment becoming sounder and sounder with experience. This was not a bad beginning for barbarians.

The western architects of the Romanesque period were not in a position to use large stones in their structures, as they neither had the means of transporting nor of raising them; but the Romans had left upon their soil vast edifices built of very small irregular masonry,

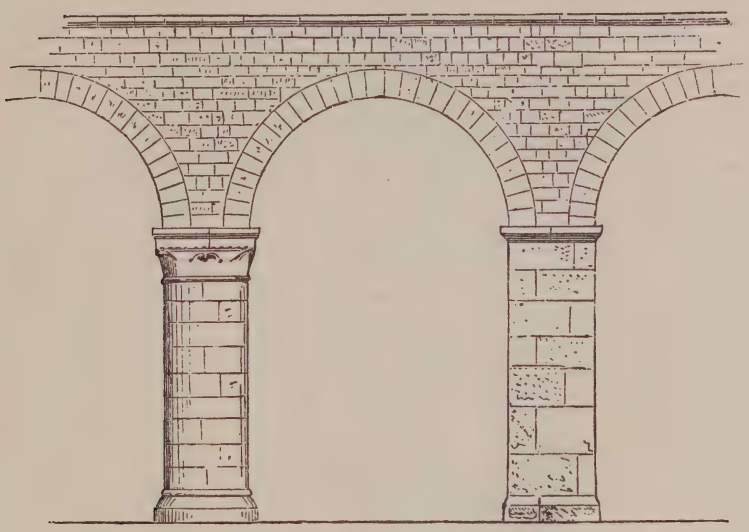
Fig. 37.



rubble or brick; this construction, however, was always regarded by the Romans as a naked body to be clothed with marble, stucco, or ashlar facing, decorated with monolithic columns. The Romanesque architects, on the other hand, while they availed themselves of the ancient examples as regarded structure, frankly took upon themselves the responsibility of ceasing to make a distinction between the body and the covering. The construction itself and its necessities imposed the form and was the architecture. Thus, when the Romanesque architect proposed to build a nave with two aisles, a basilican nave, he did not raise monolithic columns to carry its interior walls, nor did he concern himself to give to the columns or piers, which he built

of low courses of stone, the proportions of the Roman column. He made them short, and square or cylindrical (Fig. 38);* or, if he would avoid the heavy aspect of these supports, be fashioned them like a cluster of columns (Fig. 39).† But he soon vaulted the aisles, while he continued to use timber roofs for the nave. He saw that these aisle vaults tended to thrust the pillars inward, and therefore that he must modify the pillars to enable them to offer the proper resistance. Thus he was led to adopt a square pillar (Fig. 40),

Fig. 38.



against one side of which he built up an engaged column, A, to carry the cross-vaulting or ribs of the aisle, two other columns, B, against the two adjacent sides to bear the archivolts sustaining the longitudinal wall of the nave, and, against the fourth or inner side, the column C, which arose from the base to the summit of the longitudinal wall, to act as an interior buttress against the inward thrust of the aisle vaulting, and to bear the end of one of the trusses of the timber roof of the nave. Here again was an instance of sound judgment, though the ancient orders were sadly forgotten. Meanwhile the Romanesque architect copied, as well as he could, Roman or Byzantine capitals or composed capitals from Byzantine ornaments.

The Romanesque architects had lost the tradition of those excellent

* Church of Vignory, church of Saint Etienne at Beauvais, of Tournus, etc.

† From the nave of the church of Saint Remy at Rheims, tenth century.

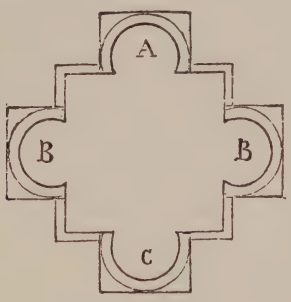
Roman cements, which would have enabled them to compose a homogeneous masonry like a mass of concrete, nor did they understand

Fig. 39.

how to make hydraulic lime; and they built on elevations usually

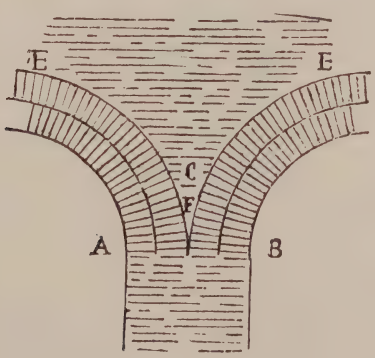
quite far from the great water-courses which furnish good sand. But conscious that they could not trust to the cohesion of the poor mortars which they used, they remedied the difficulty, resulting from their

Fig. 40.



want of means, by resisting or elastic combinations of masonry as necessity required. Thus, for example, the Romans did not hesitate to build a wall on two arches, whose outer surfaces or *extrados* met at their springing over the centre of the supporting pier (Fig. 41), because the combination A B C, though composed of inclined beds, was practically, by virtue of the perfect adherence of their mortars, a solid

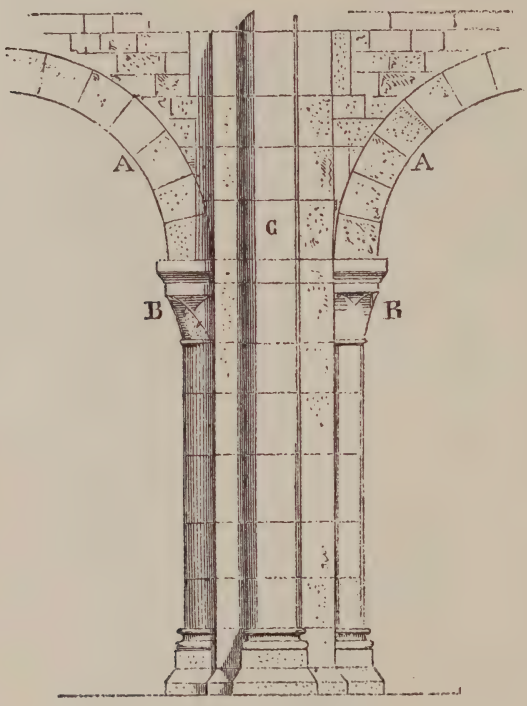
Fig. 41.



mass ; but if their mortars had less cohesion, we can readily see that the supported wall would slide down the sloping upper surfaces, E F, of the arches, and thus bear upon the acute angle, F, like a wedge. For these reasons, the Romanesque builder designed his pier, as indicated in Fig. 42, bearing his two arches, A, on two capitals, B, separated by the entire width of the pier C, which was strengthened by an engaged column. This arrangement avoided the difficulty of

bringing the supported wall to a sharp angle over the centre of the pier, which thus became entirely independent of the arches and rose from the base to the roof by successive level courses of masonry. It may be said, this is not architecture, but construction. I reply that we have reached that period of art when construction and architecture could not be separated, when architecture had become nothing more than construction combined in such a manner as to satisfy all

Fig. 42.

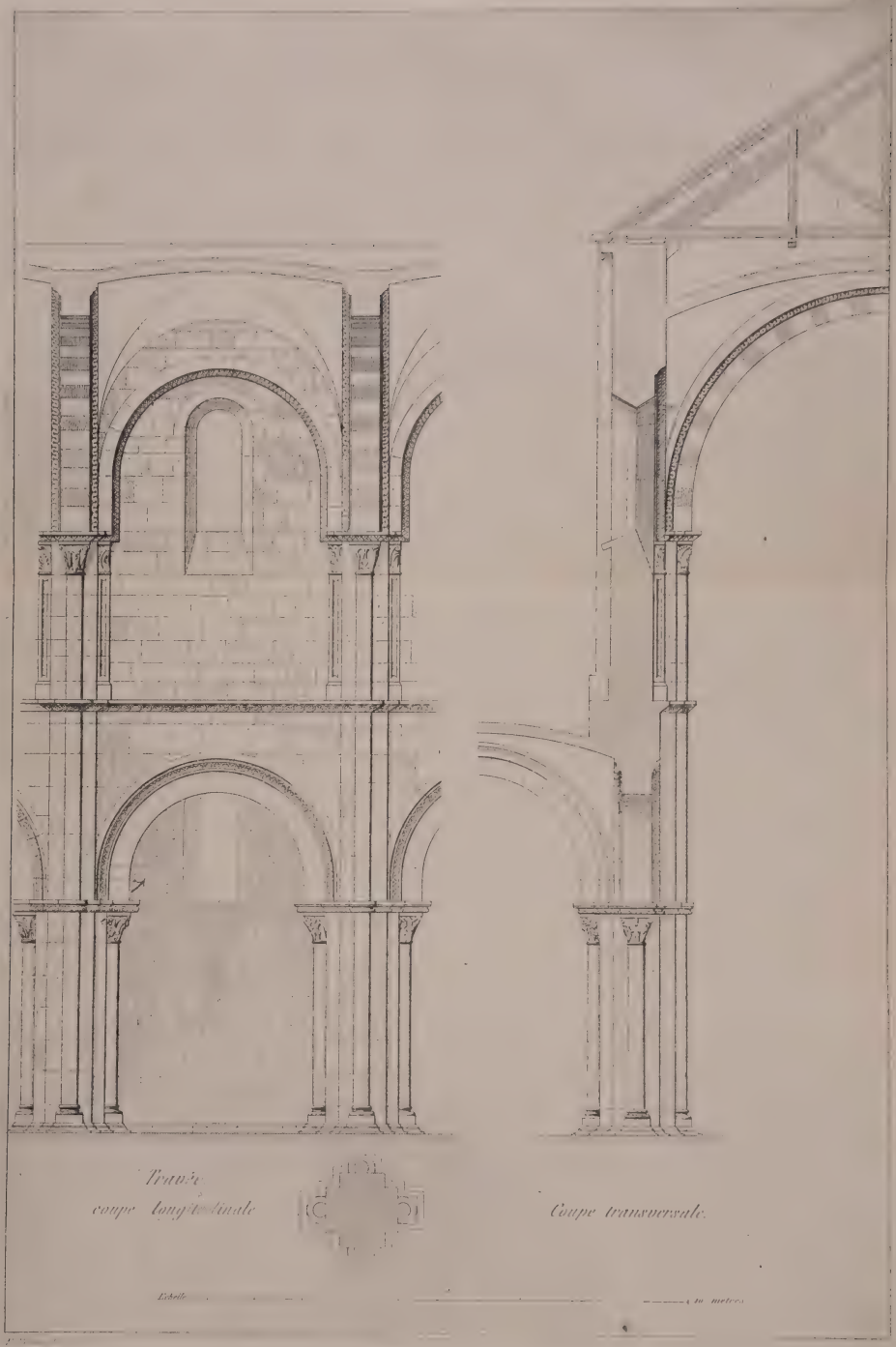


practical requirements, and at the same time to please the eye by a well-poised arrangement of materials cut and laid exactly according to the necessary forms and dimensions. When western genius yielded to this principle, it began to exhibit its true tendencies and its peculiar qualities; for then it borrowed less and less from anterior arts, and depended more and more upon itself, not only with respect to systems of construction and general dispositions, but in the matter of proportions, mouldings, monumental sculpture, and ornamentation whether carved or painted. It is not for me to reproach the mediæval masters for thus shaking off their dependence upon foreign arts.

In my opinion, we may say of any nation, "Show me its architecture, and I shall know its character"; for up to within very recent times there have existed between the peculiar genius of nations and their architecture respectively relations so intimate that one might write the mental history of such nations after an examination of their buildings; and as in these Discourses I have imposed upon myself the obligation never to advance an opinion which is not based upon facts, I may be allowed to justify this assertion.

We have already seen how the arts of the Greeks and Romans of antiquity were a faithful mirror of the genius of those nations respectively. While the barbarous nations of the West, in the earlier mediæval times, were engaged in mutual warfare, the Roman traditions among them were undergoing a fundamental change; yet these nations meanwhile developed no new elements of their own. But after this human deluge, nationalities were gradually reconstituted and recognized, and their distinctive and indelible characteristics began to be developed. It was not until then that their architecture assumed definite form. In Gaul, the monasteries first devoted themselves to this art, and made it in their own image. But in the eleventh century the monasteries were not what they subsequently became, — mere collections of men embodied in the midst of constituted society, that they might live in luxury and uselessness upon the soil which had been abandoned to their occupation or which they had acquired in the progress of time. The monasteries of that day, when disorder and abuse reigned in all the levels of society, were the asylums of men who, disgusted with the universal anarchy and oppression of the times, sought some place of stability and repose, where they might labor and study in tranquillity and forget the world. The members of the holy orders were those who yearned in some way to emerge from barbarism; and the convents were thus recruited, not only from the humbler classes, but from among the noblest and richest of the land. These men in this way formed regular governments in the midst of a society incapable of governing itself. It will readily be conceived that such institutions were as useful and necessary in times when every principle of authority and discipline was disregarded, as they would be dangerous and hurtful in the midst of a well-regulated and well-governed people. These incorporated bodies of scholars and craftsmen collected together the remains of ancient architecture, put

themselves in communication with distant nations, borrowed ideas from those which enjoyed the benefits of civilization, and lent to those which were still plunged in darkness. Their architecture was the exact expression of this state of things. In less than a century, between the tenth and eleventh, they were sufficiently advanced in the art to develop this expression; they were humble in principle and means, yet they could embody the splendid dreams of those who, at the time of the reform of Cluny, fired by conscious superiority of intellect, culture, and discipline, aimed at nothing less than universal dominion. This monastic Romanesque architecture was a true and living art, because it expressed itself as well in the humblest chapel, built in the wilderness in obedience to some pious vow, as in the immense and splendid basilica of Cluny; it was an architecture which, with the same methods, was capable of creating the most extensive as well as the most modest monuments; like the religious confederation which built them, its strength was the combination and discipline of small resources. Meanwhile, the feudal fortress preserved the traditions of the ancient Roman construction, because it was built in the same manner, by means of service-labor or requisitions. At the end of the eleventh century, the monks, already at the summit of their power, aimed at a corresponding splendor in their arts; they sacrificed to luxury without changing their characteristic style; but their magnificent edifices were often constructed with precipitation and carelessness, while the lay nobles, who, at that time, desired rather to protect themselves with good walls than to adorn their castles with the appointments of wealth, built substantially and refrained from that architectural splendor in which the monasteries were beginning to indulge. Saint Bernard, perceiving the danger, established his reform of Cîteaux; the movement was immediately felt in the architecture of the buildings of that order. Thus, if, through the Romanesque severity of outline, which was still the peculiarity of all the Clunisian work, we may detect in the twelfth century a decided tendency for rich effects, an unrestrained indulgence of fancy or caprice in matters of detail, an increased refinement of sculpture, mingled, however, with an evident deterioration in the workmanlike qualities of structure, we may see, on the contrary, among the Cistercians, the marks of a severe rule, in the care and system with which they built, and in their observance of inflexible formulas, which admitted nothing superfluous, nothing but a scrupulous



THE CATHEDRAL OF VÉZELAY.

SECTIONS.

fulfilment of material requirements by men who had no other idea than the performance of duties. We can recognize the Cistercian monuments at first sight by the economy and solidity of their constructions. We thus perceive that, during the Romanesque period, there were certain various and distinct architectural expressions, just as, in the midst of the politics of that day, there were various societies, all moving in a parallel direction, but no established social unity. There was the architecture of the black monks, that of the white monks, and there was feudal architecture; but there was no grand architectural unity, because there was no political unity, yet every one of the architectural systems was a distinct expression of the manners, tastes, habits, and tendencies of those who created them.

It was not until the end of the twelfth century that a real national spirit began to make itself felt in various efforts, attended with more or less success, towards the enfranchisement of the commons, in scholastic discussions, in the study of ancient philosophy, and in the progress of monarchical power. Enlightened men tended more and more towards the encyclopedic spirit and the application of the exact sciences. Then monastic influences disappeared forever from the history of art. Architecture fell into the hands of laymen, and in a few years abandoned the Romanesque traditions, not only in respect to everything affecting the structure, the material execution, but in its sculpture, from which all the suggestions of ancient or Byzantine art were jealously excluded; it was not among these, but among the flowers of the field and the leaves of the forest, that its decorative motives were universally obtained. In its statuary also it imitated nature, and no longer adhered to those consecrated types from the East which the monastic architects had so scrupulously preserved. Then, in all the cities of the royal domain, was formed a nucleus of truly national artists, who, in their emulation, urged the new art to such rapid development, that the same generation witnessed its birth and its maturity. This architecture of the beginning of the thirteenth century is the purest and most exact reflection of the national ideas at that epoch. The reaction against religious establishments, the desire for a national union and constitution, the spirit of investigation, the thirst for knowledge, the prompt practical application of all information as soon as acquired, — all these things were unconsciously expressed by the builders in their works; they reasoned and

examined at every step, they believed in the progress of science and indulged in the boldest experiments, without pausing for a moment in their onward march. In this movement of general intelligence, individualities soon disappeared, and architecture became a science. We must not forget that the architecture of that day was cultivated only by laymen having under them incorporate bodies or guilds of craftsmen. It would seem that the middle classes, in the midst of the political tumults of the time, felt the necessity of uniting for the sake of giving free expression to their convictions; thus, as it were, declaring themselves independent of the past and opening new paths of development. This class of artists and artisans, not being able to claim political privileges, and not hoping to equal the feudal nobility in power, demanded the liberty of the workman; they guarded all the approaches to architectural knowledge by initiations and freemasonry, and their aim was to render these initiations more difficult every day; conscious that, with no material possessions or political power, study and the practice of the arts alone could insure them a moral independence, they studied and practised accordingly with diligence and enthusiasm; they complicated and made mysterious their rules of practice, in order that they might remain masters of the art, and constrain the secular and clerical nobility to approach them with the consideration due to a body isolated and abstruse in knowledge and skill. To believe that the art of architecture in the thirteenth century, the art called *Gothic*, was an art without intimate relations with the society of that epoch, is to misunderstand entirely the national spirit. It was but the awakening of the old Gallic spirit, — the spirit which was passionate in the pursuit, development, and practical establishment of an idea, which aimed at independence by concentrating its forces in obscurity, which, in spite of all which is said of its levity, could patiently wait and bide its time until it could come to light by every available issue. Gothic architecture, in its origin, was a protestation against monastic power; it was the first and most vigorous effort of science, investigation, and the pursuit of truth against tradition. Its monuments, whose structure reposed on entirely novel principles, and whose decoration borrowed nothing from precedent, are still before our eyes; their stones speak to us, not "of suffering," as has been lately said at the Academy of Fine Arts, but of the freedom of labor, the triumph of an intelligence which felt, acted, and became independent, which ironically

concealed its secrets from blind and indifferent masters, knowing that in time it would become in turn greater and more powerful than they. Developed with incredible rapidity, arrived at the summit of its glory in fifty years after its first essays, this phase of architecture, having mastered its peculiar principles of construction and expression, soon urged these principles to exaggeration; it vigorously followed a logical progress which presently conducted to abuse; but, from the thirteenth to the fifteenth century, it never for a moment deviated from the line traced from the beginning; it perfected its practical means as no art at any time has been perfected; as regarded its structure, it finally arrived at a formula, and as regarded its decoration, it reached servile imitation, and, in the end, transgressed the bounds of nature; it pushed realism to the point of adopting, in its statuary, ugliness, but studied ugliness, as a type of humanity. But never did the mechanical execution decline, as was the case with Roman art: there was exaggeration and abuse, but no decline; so that, when the sixteenth century proposed to return to the imitation of ancient architecture, it found at hand capable architects and skilful workmen, versed in all the practical knowledge of their art.

Now, what do we behold in Italy during this period between the thirteenth and fifteenth centuries? At first, great indecision; an art, or rather arts, which experimented and submitted to very various influences; but no distinct principle, no relation between the structure and the decoration; a love of luxury, of *appearance*, combined with a barbarous execution; it was possessed by the spirit of decay; its decoration was not ancient sculpture, nor yet, as in France, an honest imitation of the local flora; it was a compromise without style or character, a cross between Roman and Byzantine traditions and the influence of northern arts. It was hardly before the fifteenth century that we find at last, not an architecture, indeed, but architects, in Italy. It would seem that from the day when that country was torn from the empire of Rome, it became the very image of disintegration. There were rival cities disputing the soil between themselves, but no nationality; and in the productions of art there were artists, but no principles. Individualities were sometimes brilliant, but they were only individualities. Thus the study of the art of architecture in mediæval Italy develops biographies, but not history, and therefore can afford but little profitable instruction. The

Italians of the Middle Ages, failing to create an art as they had failed to constitute themselves a nation, naturally reverted to imitation of Roman art; this movement was made a century before the corresponding Renaissance in France, and was essentially a movement of individuals. Thus we speak of the Renaissance of Brunelleschi, of Michelozzo, of L. Batista Alberti, of Bramante, of Balthazar Peruzzi, of Sansovino. The works of these masters, whatever may be their particular merit, are individual works between which there is none of that affinity which we like to find in the productions of a national art, and which is so strikingly exhibited, during the sixteenth century, throughout the territory of France, from the Garonne to the British Channel. We shall presently see how, through the influence of the Italian masters of the fifteenth century, the young French nobility on their return from the campaigns of Charles VIII. and Louis XII. in Italy, came to build Italian palaces in France, and at the same time how shrewdly the French artists in their employ preserved the tradition of their old independence, and still remained French.

From the thirteenth to the beginning of the fifteenth century the art of architecture in France was so concrete, so entire, so completely under the control of an exclusive brotherhood, that no external influence was felt in it; neither the clergy, in the construction of churches, nor the secular nobility, in the building of palaces and châteaux, nor the rich merchants, in the erection of their houses, made any effort to submit art to their fancies; they could not if they would; art was absolutely independent; it was a power which they could use when they required it, but which they could not direct; it acted with perfect freedom and governed itself: in a word, the architects formed a body possessing, in the domain of art, their privileges and immunities, which no one dreamed of interfering with. During this period of the Middle Ages every one kept within his own sphere; the clergy sought to maintain and to augment their prerogatives; the secular feudality struggled to defend itself against the encroachments of royal power, and was in perpetual warfare with the clerical feudality and with the inhabitants of the cities and towns; while royalty was engrossed in the increase of its political power. But neither clerks, laymen, nor king dreamed of interfering in any question of art; they did not perceive and consequently did not fear this new and independent power which was elevating itself by daily labor;

they found artists and artisans; they employed but did not govern them.

But at the close of the fifteenth century, the nobility, on their return from the Italian wars, began to pride themselves on their acquaintance with, and appreciation of, the fine arts; they professed an extravagant fondness for Italian works, and thus the body of *amateurs*, which, ever since that time, has exercised so powerful but so melancholy an influence over the fine arts, began to be formed. On their return the French gentlemen at once set themselves to replacing their old châteaux and manor-houses by palaces in the modern taste; and adorned them with porticos, colonnades, galleries, and symmetrical façades. The old Gallic artists, having exhausted all the resources with which the principles of Gothic art could furnish them, were then constrained to adopt the new taste of their clients. The art-movement of the thirteenth century was initiated and developed by artists; in the sixteenth century they were compelled to accept the art which was imposed upon them. But, while they adopted the appearance of this new foreign importation, they preserved the national spirit in their designs, and continued to produce buildings, which, while they were clothed in the fashionable garments of the day, composed of a few fragments from the Italian Renaissance, still remained Gothic in general arrangement and structure. As the ancient orders were called for, they presently adopted them as a decoration; the local flora of their sculpture was replaced by arabesques and their prismatic profiles by Italian mouldings. Jupiter, Venus, and Diana, nymphs and Tritons, assumed the places which had been occupied by angels, saints, and personages clothed in the costumes of the day. The lords of the manors were delighted, and even the artists, who at that time believed nearly as much in Diana or Mercury as in angels or saints, were not less satisfied at being disembarrassed of the remnants of Gothic art, which, in the intricacy and extravagance of its details, had reached the last limits of the possible. But as for the vital principles of that art, as for the methods which were the daughters of many successive centuries of experience, these remained unchanged; and the architects, who so readily exchanged their old Gothic ornaments for the fashionable gewgaws of the foreigner, borrowed from him neither his methods of construction nor the disposition of his plans. They continued to plan and to construct like their Gothic predecessors, to cover their build-

ings with steep roofs, and to crown them with conspicuous chimney-shafts, to build their porticos low for shelter from the rain, their mullioned windows, their narrow and numerous staircases, their grand saloons flooded with light for receptions, and their smaller apartments for domestic and daily use; like their predecessors, they remained regardless of symmetry, and still flanked their masses with towers or pavilions, still retained their old traditions of defensive architecture, still pierced their windows with regard only to the accommodation of the interior apartments, and still gave an independent and characteristic architectural expression to the various subdivisions of their châteaux. Meanwhile the noble amateurs applauded vehemently when they saw columns and Italian porticos, arabesques and Caryatides, on the façades of their palaces; and everybody said, what has been foolishly repeated ever since, that these edifices were the works of the Giocondos, the Rossos, the Primaticcios, and Serlios, who had come over from Italy to teach Frenchmen the arts!

It is worth noting that most of the artists embraced the party of the Reformation as soon as it began to make proselytes in France. But, in the midst of all its glory, the sixteenth century in France was an era of constant and, at times, tragic insincerity. Every one deceived his neighbor; every one made a parade of sentiments opposed to his real opinions or interests. Both Catholics and Reformers were the most sceptical of people, but they waged bitter war against each other for the sake of their respective religions. The Reformation recruited itself principally among the higher classes, who had everything to lose in a social revolution, and who never applied the Reformation to their own manners. The people, who had nothing to lose by a social revolution and everything to gain, defended their religious traditions with fanaticism; but with this defence of the Church and with their loyalty to the most despotic of Catholic kings, they strangely mingled republican sentiments. Royalty was feeble and indecisive at the moment when energy was most necessary. And he who at length arose to restore peace to the country, Henry IV., was the shrewdest and most ingenious mystifier of all. The arts of the time were a faithful image of this chaos of popular ideas. Confusion, with no unity or harmony between principles and appearances, an exaggerated importance given to details, an execution often negligent, always mannered, indecisive, and

tame, were the leading characteristics of its architecture. A few individualities arose in the midst of this general political disorder, but they left no trace behind them. They were flashes, but not light. The century, so brilliant in its first years, thus closed in the midst of ruin. Meanwhile, under all this disorder, the civil spirit was forming, the sentiment of political duty was developing, national unity was still progressing to a fuller and more complete expression.

In the first years of the seventeenth century, we find a revolution in the arts; they had recovered from their Italian fascination, and the civil structures erected on French soil assumed a new character. The disordered fancies or mystifications of the Renaissance, as well as the Gothic traditions, ceased to influence design, and the old Gallic spirit reappeared with renewed energy. Architecture became reasonable, chastened, and modest in its ornamentation, and in structure severe and studied; it affected a sort of Puritanic rigor and simplicity, employing only the means and forms necessary to the expression of its practical requirements, and reaching a result of dignified repose without pedantry. Construction was the main element of design, it was emphasized and honored. The result was solidity without clumsiness, gravity without nakedness. It was the architecture of men of sense, comparatively well instructed, and free from the illusions of prejudice. It was the expression of wealth without ostentation, comfort without effeminacy. In short, it resumed, for a short career, that character of independence which it had lost amidst the artifice and insincerity of the preceding century.

The architecture comprised between the close of the reign of Henry IV. and the majority of Louis XIV. was truly French, and, next to the architecture of the twelfth, thirteenth, and fourteenth centuries, it seems to me that which best merits the title. In going over a château or mansion of the time of Louis XIII., we seem to live among those who first inhabited it. These edifices were the envelope and index of the society of that epoch,—a society which was the last to leave a profound impression on the history of literature, science, and the arts, the last to be distinguished at the same time for firm and independent characters and for that lively and elegant spirit, that good-natured irony, which are the peculiarities of the French people.

The long reign of Louis XIV. served, after much ado, to stifle this final effort of the true French spirit in the arts. Louis XIV. loved

to build; but he brought to the arts tendencies opposed to their true and healthy development: for the arts can live only with the intellectual independence of the artist. After the time of his majority, therefore, the good and wise traditions of construction gradually disappeared, workmanship became more and more negligent, masons built badly, carpenters could not frame a wooden structure with economy and intelligence, and sculptors lost that firmness of hand, that refinement of sentiment and feeling for truth, which they still possessed at the beginning of the seventeenth century; their heavy chisels produced only works monotonous without character, pompous without grandeur; the old craft-spirit and the trade corporations disappeared; and all that was truly national in French art became effete and barren. I have sometimes been accused of undue severity and even of injustice towards the arts of the age of Louis XIV.; although that age may be great enough in all which it has accomplished to be able to dispense with the tribute of my admiration, yet I must justify my opinions. It is because I behold in Louis XIV. a great king, that I cannot but regret to find in him a spirit little disposed to aid in any true development of the arts. When a sovereign manifests no disposition to interfere with questions of art, but leaves them absolutely free, he cannot be considered responsible for their progress or decline during his reign; but when an absolute monarch undertakes to exercise an influence over everything, even over the works of intellect among his subjects, it is certainly allowable, I think, to render him responsible for decay in any such works; and no one will dispute the fact that the art of architecture was more brilliant at the moment of the majority of Louis XIV. than at his death. It was with his architects as with his ministers and generals; he began by calling to his councils Colbert and Louvois, and ended with Chamillart and Ponchartrain; he found De Brosse, Le Mercier, Blondel, and François Mansart, and finished by confiding the public works to Perrault and Hardoin-Mansart, the last one very fortunate in possessing the name of his uncle, but unfortunately possessing nothing else of his. Louis XIV., that king so French, so jealous of foreign influences in all other respects, saw the arts only through the Romans, and what Romans! He was naturally wise, self-contained, moderate in all things, just and discriminating, yet, as he was ambitious to rival antique Rome, he succeeded, as regards art, in completely crushing the natural and original genius

of the French people, whose political unity he had cemented and whose empire he had enlarged and strengthened.

After the middle of the sixteenth century French art was evidently bewildered; its history was a perpetual contradiction; it lost its way. Under Catherine de Medicis, both people and artists had a natural aversion for everything from Italy, and yet they imitated Italian arts. Under Henry IV. and Louis XIII., they swore by antiquity, and yet the arts resumed their peculiar French character. Under Louis XIV. the people thought only what Louis XIV. thought. Though the most intensely national of all the sovereigns of France, he determined to have a Roman architecture. Like a Roman emperor, he caused himself to be painted and sculptured everwhere. Under Louis XV., politics, like the arts, declined. Philosophers spoke in the name of reason, yet never were the arts less reasonable. Under the republic, the national spirit was developed even to delirium; yet our national edifices were overthrown, and Rome was rummaged for models. While crying, "Death to aristocrats!" France was endeavoring to reproduce the architecture of the most aristocratic civilization of antiquity.

I have no exaggerated patriotism as regards art. The arts, wherever they are developed, belong to humanity; I admit that they have no country. But every people, or rather every centre of civilization (for political limits do not always coincide with those embracing the characteristics of a nationality), has, as I have already said, its peculiar genius, its individuality, which should not be overlooked, especially by artists; and it is because we have too often committed the error of not understanding the national genius of France, that, for the last two hundred years, its arts, after so many variations, have become debased, attaching themselves by their essential characteristics to no particular time or race. It is a fine thing to have the cosmopolitan spirit, to receive all human beings as brethren, and to consider all ideas as universal property; but facts are continually demonstrating that the French brain is not constructed like the German or the English. It is well for us to profit by the ideas of our neighbors, but let us not forget that we have our own ideas, and, most especially, let us not be deluded into the belief that, because other nations may have been endowed with rare intelligence and creative originality, it is impossible that we too should have the same qualities. It is not my task to treat here of the present condition of

art, but rather to investigate into its capacities for a truly national, and therefore healthy, development. This is the point to which we all should aim; for I cannot admit that, while France exists, its arts can perish. The sap is in a latent state; and only a short season of intellectual sunshine, only a little good sense, is required to send its invigorating and prolific influences even to the feeblest branches of the tree.

Perhaps I have dwelt too long in this Discourse on the epoch of the transition of the arts of antiquity to the arts of modern times; but it must not be forgotten that we have to encounter deeply rooted prejudices at every step. If these prejudices tended only to create a misunderstanding regarding the importance of certain historical facts, to perpetuate certain exclusions in the study of art, I perhaps would not have paused so long to consider the Byzantine arts, the principles of the western arts, their tendencies and value. But these prejudices, it seems to me, are attended by a much more serious inconvenience; they create a complete misunderstanding of the nature of modern western genius, and drive us, who are better fitted than any other nation of the West for the culture of the arts, to the last and worst expedients. This is unjust and absurd; it prevents us from profiting by the efforts of our forefathers, and quite effaces the well-reasoned and cautiously deduced results of long experience. Mediæval art, to which I am referring, was unfortunate in this one respect: it developed too soon. During this epoch of development it completely disembarrassed itself of everything which could interfere with its independence and its national character; it modified its traditions, it admitted principles as *liberal* as could be desired, it found a new path entirely unobstructed by prejudice, and all this while pursuing distinct and firmly established methods. It fell with the feudal system under which it had been born; though neither itself, in its own essence, nor the people, the laity, from whom it issued, had any sympathy with that system. It was enveloped in the disaster of mediæval institutions, but should not be misunderstood and disgraced on that account. Because, for more than three centuries, this national art has been so misunderstood and disgraced, is no reason why we should not revive it, why we should not seek in its principles, so large and so nearly assimilated to our national character, elements which may be of essential use to us to-day. Our character and our tendencies are the same now

as when this was a living art; for nationalities never undergo transformation. Every day's experience proves to us (and now, perhaps, more than ever before) that neither conquests, nor institutions, nor political boundaries, nor combinations of diplomacy, have any tendency to modify the spirit or genius of the races which inhabit the globe. The arts, therefore, so brilliantly developed in the era from the twelfth to the fifteenth century, are ours, they are the result of our labors and our genius; as they have shown themselves capable of expressing the character and conditions of the past, they are capable of a similar application to the present and the future. The civilizations of antiquity perished, because they were composed only of masters and slaves. In antiquity there was nowhere what we now call a nation, that is to say, an agglomeration of provinces united by the same spirit and the same habits of thought, all of whose members are interested in the preservation of the national unity and contribute towards it.

In antiquity we see absolute monarchies supported by a theocracy, we see oligarchical or aristocratic republics, and a coarse, ignorant population, the dregs and slaves of society. Every inspiration, every movement, every intellectual work, every sentiment of dignity and independence, came from the higher classes. Not so with France: the nation formed itself and developed itself, independently of the institutions which were imposed upon it as the result of conquest, and, even to this day, on great occasions, it often acts from a popular and irrepressible impulse, contrary to the calculations of the most skilful and experienced statesmen. Happy the ruler who comprehends and dares to confide in its genius and instincts! Secular or ecclesiastical feudalism was with the nation, but not of the nation; the national spirit developed and progressed without the knowledge of the nobles. They made use of it, indeed, but never attempted to direct or to shackle it, until, to their surprise, they found that it had expanded far beyond their reach. In this is the whole history of French art, and in this the assurance that, notwithstanding three centuries of oppression, it cannot perish.

The reaction has begun; we possess the elements of it, inasmuch as, for the last twenty-five or thirty years, our artisans and workmen have eagerly and readily accepted every attempt to revive the national arts. Even at this day, as has ever been the case in France, the movement has begun, not from the wealth or power or superior edu-

cation of the leaders of society, but from the national instinct of the people. The work has commenced in the cabinet and workshop; and inasmuch as the last of our workmen evinces a tendency to reason, a desire to comprehend that which he has to do, and not to do it as a mere mechanical task, and as he is enthusiastic over such works as in general design and detail have a logical sense in his mind, the old spirit of the lay artisans of the twelfth century seems to be gradually awakening.

In fine, our workmen are made of the same clay as our soldiers; both devote themselves so much the more willingly to the performance of their duties, when they know the object of their duties and know that this object is noble. But our century has not yet said all that it has to say; there is time enough by and by to appreciate the value of these facts, to consider the importance of the elements at our disposal, and to seek the means of making them useful.

SEVENTH DISCOURSE.

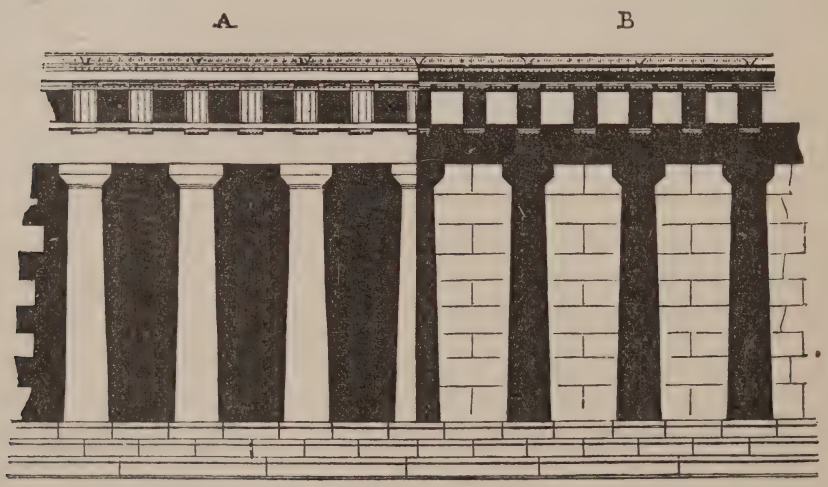
ON THE PRINCIPLES OF WESTERN ARCHITECTURE IN THE MIDDLE AGES.

THE architecture of the ancients was for a long time studied without any regard for the effects which they produced by the application of color to form, whether this color was obtained by incrustations and slabs of marble or by paintings on plaster. The Orientals, like the Greeks and even the Romans, never considered it essential that the real material of the edifice should remain apparent. Thus, even when the Greeks employed white marble, they were accustomed to cover it with color. However thin we may suppose this color to have been (and all appearances seem to indicate that it was, on the contrary, laid on in decided and heavy coats), its effect was no less to conceal the real material under a sort of envelope quite independent of the structure. I cannot readily admit the possibility of a mistake on the part of the Greeks in the execution of their works of art; and if, in any such respect, their proceedings seem strange and incomprehensible to us, I would rather attribute the apparant anomaly to the imperfection of our senses than to an error on their part.

The investigations of antiquaries and artists have now, for some time, convinced even the most sceptical that all the Greek monuments were colored both within and without on a thin layer of plaster when the stone was of a coarse texture, and directly on the polished surface when marble was used. This indisputable fact leads us to the conclusion that the Greeks did not consider architecture as residing in form alone, but recognized that this form should be aided, completed, and modified by the application of various colors. Indeed, it requires no very extensive experience to learn that color may have a

decided influence over form and even over proportions; thus, if we color the metopes and the wall of the cella of a Greek temple with black, we shall obtain an entirely different effect from that which would be produced if the metopes and wall were left white, and the cornice, triglyphs, architrave, and columns were painted black, although the dimensions and proportions in either case should remain the same. (See Fig. 43.) By the first method, indicated at A, the order is filled out and its architrave, triglyphs, and cornice assume the importance which belongs to them; by the second, indicated at B, the columns are made to appear higher and more meagre, and the entablature loses its value. Thus, a certain order, which seems heavy, may be made to appear light and airy; another, of slender proportions, may be made solid and firm. Color, therefore, has a decided influence on architectural effects, and we should not, at this day, undertake to form an opinion regarding the edifices of Greek antiquity without considering this element of expression.

Fig. 43.



The sensibility of the Greeks was far too delicate not to have been impressed with the architectural importance of a principle which, by the mere application of various colors, was capable of thus altering the expression of form. As for us, we are so completely under the dominion of rooted prejudices, that we revolt from the practical application of such new elements, although most evidently resulting from the observation of natural laws. In sculpture and in architecture we

have long been accustomed to recognize form alone as admissible, as if, in fact, everything in relief should be deprived of the assistance of color. This sentiment is the result of the introduction into architecture of certain new principles whose value is not generally appreciated. It is one of those innumerable contradictions through which the arts of the present day are blindly groping. Some exclusive partisans of the adoption of classic architecture protest against the idea of aiding form with color, although this expedient was always admitted in that architecture; in thus protesting, they have only pushed to extremes the tendencies of mediæval architects, who gave to their devices of construction an importance unknown before their time. To be clearer, it is as if these partisans said, "We admit no other style of architecture than that adopted in antiquity, but we protest against the use of one of the most powerful principles by which the ancient architects were accustomed to obtain their effects; we believe we should exclude the constructional methods in vogue during the Middle Ages, but we maintain that the consequences of these methods should have a dominating influence over our architecture."

The Asiatics, the Egyptians, and the Greeks in turn colored their architecture; and the Romans, also, whether by means of paintings or by incrustations of various marbles. Their example was followed by the Arabs and by the Byzantine and Romanesque architects. During the period called Gothic, architecture was still colored by tradition; but finally the practice, as applied to structure, was gradually abandoned, in order that all the science and complication which distinguished the construction of that period might be seen and appreciated. Painting ceased to be monumental, and was used only in certain exceptional cases.

In antiquity, therefore, and in the earlier part of the Middle Ages, an edifice was regarded as finished only when color assisted form. But after the thirteenth century in France, form had no further need of this assistance, as it was the result of a construction all of whose effects were obtained from its own combinations. Geometry triumphed over painting; and painting became a luxury, an ornament, having no necessary connection with architecture. Ever since then these two arts, architecture and painting, naturally allied to each other by the strongest ties, have had a tendency to separate, till now pictures are hung up on blank walls, and neither painter nor

architect foresees, the one where his picture is to be suspended, and the other what paintings are to decorate the structure he has raised.

The architect should be enough of a painter and sculptor to appreciate exactly how and to what extent he should avail himself of the two sister arts; and the sculptor and painter should have such a feeling for architectural effects as never to disdain to contribute towards them. But this is not the case at present; we long since lost that habit of harmony, without which the highest art cannot exist; the architect builds his house, gives to it such form and style as he thinks best, and then it is turned over to the painter, whose interest and impulse it is to make his work as prominent as possible, and to obtain, perhaps, a general effect of which the architect never dreamed. The sculptor works apart in his studio and presently sends his bas-reliefs or statues. Architect, painter, and sculptor have, perhaps, each exhibited the most remarkable talent, and yet the general result of their labors thus combined is unsatisfactory; the sculpture is, perhaps, on a different scale from the architecture, or presents an effect of movement and confusion where the general design required repose; while the painting, applied without sympathy and as an afterthought, falsifies, cancels, or overwhelms the architectural lines, is sombre where it should have been bright, and brilliant where it should have been grave and quiet. The three arts, instead of aiding each other, have thus a tendency to mutual destruction. Of course, architect, sculptor, and painter accuse each other of the responsibility for the incomplete and unsatisfactory result. We are ignorant of the precise relations which existed between architects, sculptors, and painters in antiquity or in the Middle Ages; but it is evident, from the monuments, that these relations were close, constant, and direct. I do not believe that the artists lost by this, and it is certain that art gained. We can find traces of this alliance between the arts so late as the seventeenth century, at least in the interiors of palaces; its latest results are witnessed in the gallery of Apollo at the Louvre, in that of the Hotel Lambert, and even in the gallery of the Marbles at Versailles. But when architecture began to shut itself up in academical prejudice, when the painter made pictures and not paintings, and the sculptor made statues and not sculpture, this precious alliance was broken. While detached works of art are thus crowding the museums and galleries of amateurs, monumental

art is losing its most appropriate adornment; it has become the vulgar belief that cold, white, naked stone is alone suited to the dignity of such art, and men who will not live in a room which is not hung with variegated paper, will not permit the temple of God or the hall of a palace to receive the slightest color. Meanwhile, as the arts must be encouraged, pictures are ordered of painters, and these pictures are hung in rooms which the painters have never seen, without any regard to architectural forms and dimensions or to the direction of the light. Statues are ordered of sculptors, who execute them without difficulty, but in ignorance of where they are to be placed. We never can boast of being a truly artistic people, so long as this state of things is permitted to exist. In all really fine epochs, sculpture and painting have been treated as the decoration of architecture, a decoration made for and essential to the body to which it was applied. But, in order to preserve the authority which architecture acquired over the other arts, she had to respect herself and make herself worthy of such a decoration.

The monuments of antiquity, which we now behold ruined, sacked, devastated, and often lost in the midst of squalor, filth, and poverty, were formerly surrounded by carefully adapted architectural features, and approached only by skilfully managed transitions. The temples and palaces of Athens or Rome never were placed with their bases in the mud, like most of our public monuments. Site and surroundings were carefully chosen. Thus the exterior color of edifices which with us would appear ridiculous (as it is ridiculous to see a person walking the public streets clothed in a brilliant costume), acquired great value by the care taken by the ancients to preserve them from all taint by means of a careful attention to location and accessories. We find this sentiment of respect for works of art prominent among Oriental nations. We can understand the propriety of covering a pagoda from base to summit with lively colors, incrustations, and enamels, when we find that its gate is approached only after passing through several courts, diminishing in size and increasing in richness, paved curiously with marbles and adorned with shrubs and fountains. We can comprehend the richness of Egyptian sanctuaries, when, to reach them, we find that it was necessary to pass through pylons, porticos, and vestibules, whose luxury increased with their proximity to the sacred place. We can comprehend the bril-

liant painting of the Greek temple, when we discover by how many objects of art it was surrounded, the sacred groves, the enclosing walls, the innumerable accessories whose presence was, as it were, an introduction to the last and most complete architectural expression.

Antiquity never lost sight of this principle; and the Middle Ages often endeavored to recognize and follow it, but with manifest inferiority, above all in France; for in Italy the influence of the pagan traditions was still felt, and to this fact may be attributed a large part of the effect produced by the architectural works of that country, although, taken by themselves, they are often inferior to those of France. But, as for us, we have long seemed not to be aware that it is a part of art to know how to surround and embellish its works. Although this kind of negligence, which is a peculiarity of our national character, is, as I shall take occasion presently to show, the result of a beautiful and noble quality, it can be avoided without violence to any essential advantage to be derived from the hereditary principles which it is our duty to keep always in view. To this end, we must acquire an exact knowledge of our aptitudes and requirements; we must lay aside those prejudices of education, those incomplete or superannuated doctrines, those vulgarities, which tyrannize over the world, and which we artists, either through feebleness or ignorance, have not hitherto had the courage or the means boldly to oppose.

We, as well as others, perhaps, possess qualifications which are admirably adapted to the development of the arts, and particularly of architecture; yet we have not only failed to profit by these qualifications, but have allowed them to be overwhelmed in the reign of vulgarity under which we live, because we have been willing to appear other than what we are, and have neglected the precious gifts which belong to us. We build a monument, but we place it badly and surround it badly; we do not know how to present it to the public; it may be a masterpiece of art, but we take no measures to preserve it from that familiarity and daily contact with worldly traffic which breed contempt and defilement. We have not known how to respect our own work, and therefore naturally no one respects it. The worst edifices of the Middle Ages or of modern times, in Italy, were always placed to produce an effect; the picturesque played an important part. We have replaced this quality by symmetry, which is contrary to our genius, which embarrasses and fatigues us; it is the last resort of our feebleness. Neither in the Athenian Acropolis, nor in

the Forum of Rome or Pompeii, nor in the works described by Pausanias, do we discover any general symmetrical dispositions. Symmetry among the Greeks was applied only to an isolated edifice, though even in this respect exceptions abound, but never to a collection of edifices. Even the Romans, who, as we have seen, were willing to admit symmetry into their masses, never sacrificed to it necessity or common-sense. Yet with what art did the Greeks locate or group their public structures! With what a just appreciation for effect, with what a fine feeling for that quality, so much disdained by our architects, which we call the picturesque! It is disdained, because our plans and elevations, studied on paper, generally have but slight regard either for the peculiarities of site or aspect, the local effects of light and shade, the surroundings, or the differences of level, to which architectural forms may be so happily adapted; because, especially, even before aiming to satisfy the practical requirements of the programme, the architect is preoccupied with the idea of building a symmetrical and balanced façade, a great architectural case, in which afterwards the different apartments are to be arranged as well as these arbitrary circumstances will admit. It is hardly necessary, I presume, to cite examples to prove that I do not exaggerate in this statement. We need but to look around us. If we elevated these great regular architectural boxes upon platforms, terraces, or vast sub-basements, as the Romans always did in such cases, and as was done by the French in the seventeenth century at Versailles and St. Germain, if we had a care for their surroundings, and emphasized all that there is majestic in an assemblage of symmetrical lines by detaching them from the masses of buildings in our cities, there would be some reason or excuse for this symmetry. But no; these great structures are lost in the midst of crowded towns, their bases are on the street, their façades can only be seen piecemeal, and it is only by examining the plans upon paper that we have the pleasure of perceiving that the right wing is of precisely the same length and width as the left. The Romans and, above all, the Greeks never admitted symmetry save when the results of their observance of this law could be comprehended in a glance of the eye, that is to say, when the space occupied was sufficiently restricted to satisfy the eye by a disposition of balanced masses, without the necessity of an appeal to reason to comprehend the disposition. But, if it is necessary to walk a thousand yards to see that the façade on the north end (sup-

posing that the mind can retain the image so long) is similar to that on the south, if one must go out of one court and enter another to perceive (supposing always that the memory is faithful) that these two courts are identically alike, I ask, why disregard common-sense and embarrass all the practical requirements of the structure to obtain a result so puerile, a result which can only satisfy a few narrow-minded pedants?

Whence do we derive this custom which exercises such a prevailing influence over all modern architectural composition? Certainly not from mediæval traditions, nor yet from those of antiquity, which are entirely opposed to it; but from certain very recent, but very unreasonable academical formulas, in conflict with our national genius, which is essentially rational and independent of such artificial restrictions; formulas, according to which we build inconvenient structures, which are tiresome to the eye and satisfy no instincts of propriety, but enable any one to set himself up as a judge in architectural questions, and which, for this very reason, are extolled as infallible.

In examining the ruins of Greek cities, we cannot but be struck by the care with which the architects of that beautiful epoch profited by their sites to give increased value to their monuments. They loved architecture as an art, but they also loved nature and light; they endeavored to attract attention to their designs and to surprise by coy and unexpected devices, avoiding monotony and prudish formalism. They were scientific constructors and severe artists, full of respect for principles and form, but they were also subtle decorators and exquisitely delicate in their choice and arrangement of effects. The Greek architect never levelled the rock on which his monument was founded; he decorated it, he profited by its asperities, he cut it with taste and with profound knowledge of effect. Look at Athens, Corinth, and, above all, at those antique Greek cities of Sicily, Agrigentum, Selinus, Segeste, Syracuse. Who would not say, on beholding these venerable ruins, "Happy the lives of those who so understood and so exquisitely enjoyed the beautiful alliance of art and nature!"

With the Roman it was otherwise. He readily sacrificed nature to his ideas of order and grandeur. In order to illustrate the difference between these two principles, we here present, in Fig. 44, a view of the temple of Juno Lucina at Agrigentum, restored, and, in

Fig. 44.

Fig. 45, a bird's-eye view of a Roman temple of the Imperial epoch, with its porticos, its enclosing wall or cloister, its approaches, and its large and sumptuous architecture.* In modern times we cheapen the sites of our monuments, or, if we undertake to isolate them, we surround them with blank deserts which belittle them, affording no introduction and no architectural preparation or contrasts; we think we have answered the last requirements of good taste if we surround our monument with an iron fence upon a low wall.

I have said that this peculiar negligence of ours about the manner in which our works should be completed and presented to the public proceeds from a noble quality in our national character. The fact is, that, in our pursuit of improvement, we are constantly experimenting and investigating, but we never pause to develop the advantages we have gained into the perfection of which they may be capable; and thus, in our eager and impatient haste, the full enjoyment of our artistic capacities is every day adjourned to the morrow; this enjoyment will come some day, we think, but it certainly does not exist at present. The true history of our arts, as of our civilization, is embraced in these few words, and it is in this respect that we exhibit another marked point of contrast with the Romans, the most practical people of historic times. It leads us into the strangest blunders. Thus, we enunciate a principle, which suggests another principle, and so we proceed in an interminable succession of experiments, abandoning each in turn before its capacities are developed, and rushing on to others, leaving behind us all the while a sad record of unfinished work and broken promises; but, meanwhile, some people, more calm or more attached to the interests of the moment, take up one of the principles which we have thus abandoned, and, by serious study and quiet processes of induction, develop and perfect it; and when one day, wearied with our unprofitable search after improvement and at the end of our resources, we meet these

* Of the temple of Juno Lucina at Agrigentum, the great platform, which was built upon the rock, towards the east, still remains, but the temple itself is an utter ruin. Our view is taken from the side towards the city, the temple being built upon a long ridge of calcareous stone which served as ramparts, and which, on the inner side, was covered with monuments cut in the living rock. Any one visiting these ruins, now far removed in a wilderness, can see that the Greek architects were skilful landscape gardeners, and knew how to exercise their qualifications as such without injury to their art. The Roman temple, which is a fair type of the sacred edifices of the Imperial epoch, is taken from a medal dedicated to Jupiter the Avenger by the Emperor Alexander Severus. On the reverse appears this inscription: IOVI·VLTORI·P·M·TR·P·III·COS·P·P. (Imperial Library, cabinet of medals.) See "Architectura numismatica," or Arch. Medals of Clas. Antiquity, by T. L. Donaldson, London, 1859.

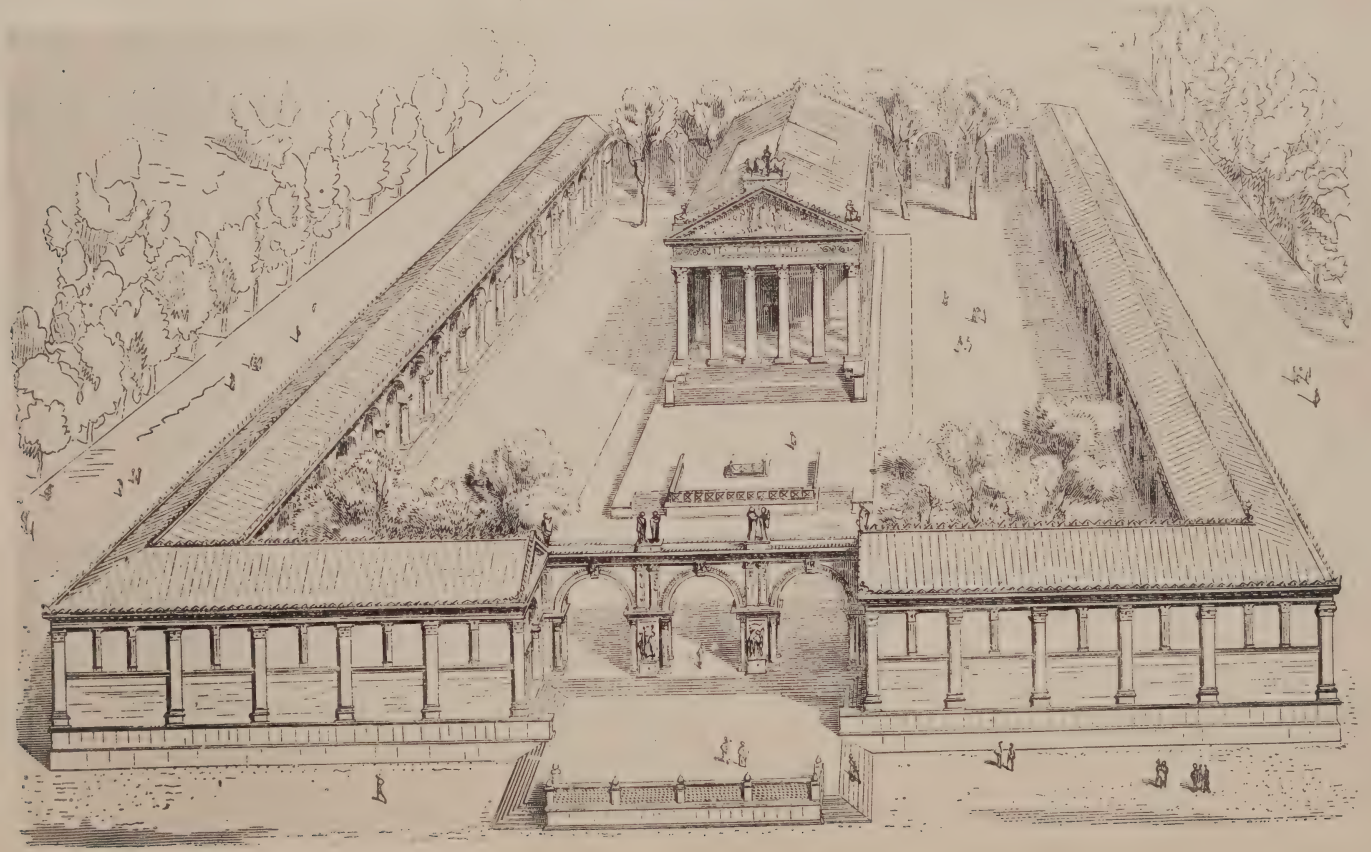
foreign developments of our own principles, we are delighted, and, in the characteristic ardor of our pursuit of novelties, at once set ourselves to the same headlong work of imitation, adaptation, and abandonment. It will readily be seen how these strange revolutions confuse our ideas, so that, in the midst of so many different elements, we are at a loss to distinguish the true from the false, or inspiration from imitation. This is the reason why we experience so much difficulty in knowing what our real aims and true requirements are in respect to art. The Greeks present a similar activity of genius, but their constant and devoted love for purity and truth of form saved them from the errors into which we have fallen; like us, they were progressive and were sensitive to new suggestions, but, by reason of their instinct for the beautiful, they transformed everything they touched into a joy forever, and thus they remained the masters of their conquerors.

Let us now follow step by step the progress of the arts in Western Europe from the Carlovingian epoch up to modern times.

It is not easy to find, either in Italy or France, any remains of monuments of the eighth and ninth centuries, and those which we do discover exhibit an imperfect art which is a sort of compromise between Roman traditions and Oriental influences. Then, in the tenth century came the Norman invasions of the West, arresting the progress of the new civilization in its earliest stages. It is not till the eleventh century that, under the influence of monastic establishments, especially those of Cluny, we can discover any development of art towards a new path.* These monks began by establishing themselves, as far as possible, on the foundations of the old Roman occupation. The Roman villa had no small influence on the plans of their monasteries, in which, as in their antique prototype, symmetry was sacrificed to convenience, situation, and aspect, thus presenting a similar agglomeration of buildings, thoughtfully and judiciously disposed and varying according to the destination of each, as we have had occasion to observe in the villas of the empire. Although the taste thus exhibited by the western monks more closely resembled the Latin taste than any other, yet, in the eleventh century, new elements began to appear in their art. It is at this moment of its

* See in the "Dict. raisonné de l'Arch. Franc. du X^e^ au XVI^e^ siècles" the articles ARCHITECTURE; ARCHITECTURE RELIGIEUSE, MONASTIQUE; CONSTRUCTION.

Fig. 45.

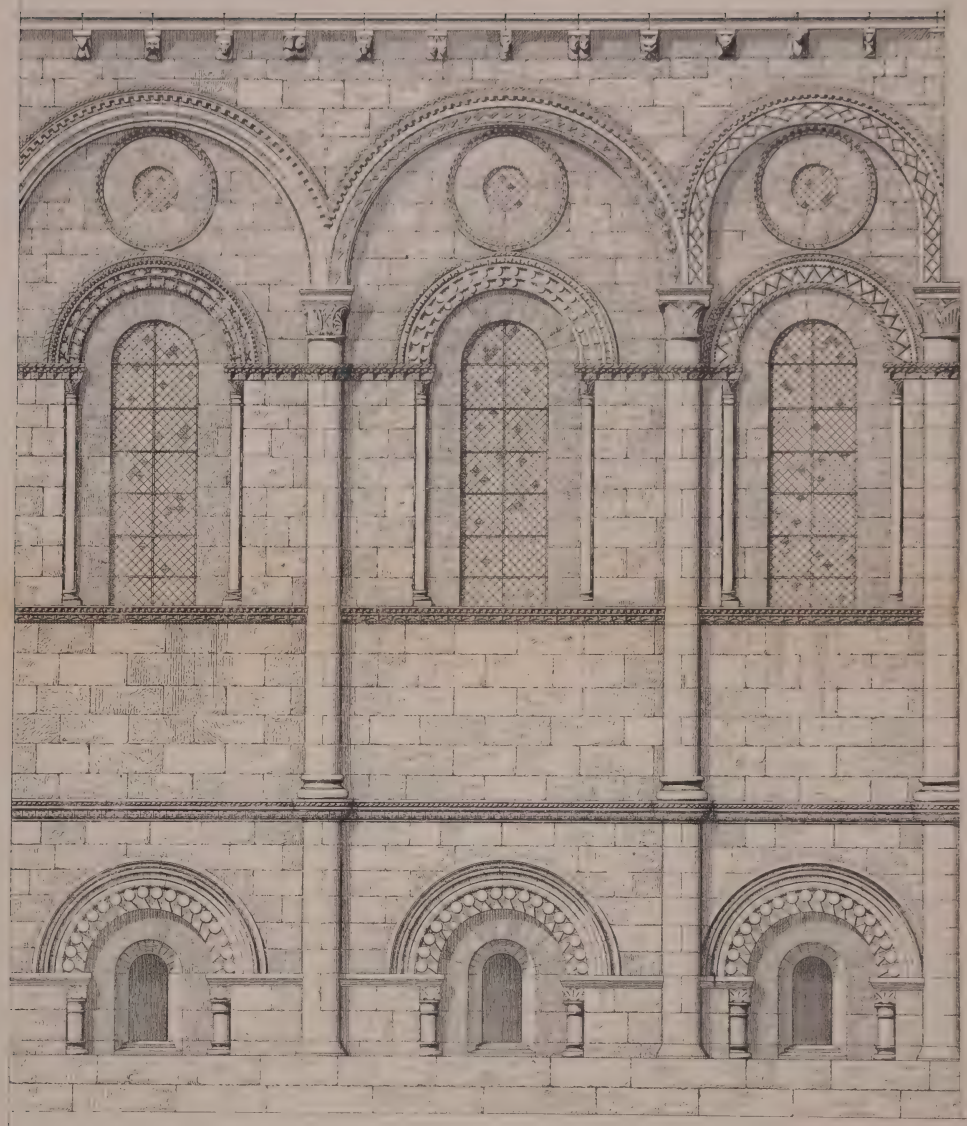


development that the history of architecture requires to be analyzed with the utmost care, for from these first essays we are to derive what it is most important for us to know in our labors for the renovation of modern architecture.

This is not the place to recount the supreme influence of the abbey of Cluny, during the tenth and eleventh centuries, that is, under the rule of the abbots Saint Odo, Aymard, Saint Maïeul, Saint Odilon, Saint Hugh, or the privileges which this abbey enjoyed independent of all secular or episcopal power and subject only to the will of the Pope; it is unnecessary here to give the history of the numerous missions undertaken by the Clunisian monks in all the countries of Europe, the reforms of which they were the devoted apostles throughout Christendom, or the great works which they undertook. Suffice it to say that it was a true government, the only one which pursued regular and logical methods in that era of public misery, when all other powers were feeble and undeveloped. Now the Order of Cluny, being thus master in the domain of intellect, and being the only institution which had constant intercourse with Italy, Spain, and Germany, imposing its rule everywhere, had need of an art which should be equal to the emergencies and dignity of its mission. We must remember, moreover, that all the distinguished minds of that time, all those who desired to elevate humanity above the prevailing barbarism, took refuge in the monasteries of Cluny, and gave to that vast religious and civilizing association the weight of their intelligence. Cluny, therefore, by reason of its continual relations with establishments spread over Italy, Germany, and even in the East, became a sort of reservoir, in which the different sources of art, gathered together from every quarter, were mingled to furnish a new current. It was in this way that the traditions of Roman art were transformed into a powerful school. The churches of Cluny, Tournus, Vézelay, St. Martin-des-Champs at Paris, la Charité-sur-Loire, preserve remarkable specimens of that Clunisian art, which was the only one in the eleventh century deserving the name of architecture. The Clunisian masons, stone-cutters, sculptors, and painters possessed methods belonging to a school the grandeur of whose efforts cannot be misunderstood, — a school which, while it was the issue of Latin arts, bore the imprint of its own peculiar genius.

In all the writings, instructions, and rules which emanated from Cluny, there is a consistency, a clear and practical spirit, which can-

not fail to strike every attentive reader; we recognize in them the hands of lettered men, habituated to a wise and discreet exercise of power, to administration, and to all the difficulties which belong to human government; men sure of their intellectual superiority, and having the patience and moderation of strength. In the eleventh century, the Clunisians seemed to be justified in considering in good faith that the government of all human affairs belonged necessarily and by right to them. This explains in part the struggles of Gregory VII. against imperial power. The monk Hildebrand, when he became Pope, still remained the friend of the abbot Hugh, who was not less attached to the emperor Henry, and often interposed between these two illustrious rivals. This single fact indicates the politic spirit of the great abbots of Cluny in the eleventh and twelfth centuries. This real and incontestible power, this taste for intellectual labor, this moderation, this habit of grandeur, we find expressed in the Clunisian monuments of that epoch. There is order in them, but not the strict order of the monk; rather somewhat that of the Roman; but we may say, in favor of the Clunisians, that they knew how to form schools both of construction and sculpture, while the Romans invented only the construction of their edifices, taking all their decoration from the Greeks. It is true that the Clunisians took from Byzantium, and from among the Greek refugee artists in Italy, painters and sculptors to adorn their buildings; but who was there in Italy, at the end of the eleventh century, to conceive a monument like the church of Vézelay? Whence could profiles so noble and of a style so pure have been imported? In what European country, at that period, can we find a composition analogous, for instance, to that bay of the nave of Vézelay of which Plate XI. can give but a feeble idea? This is architecture deduced from the necessities of execution and construction and not made to satisfy the eye with a geometrical design. This is an original style whose composition has nothing in common with the examples left by antiquity. Already, in these Clunisian buildings (especially during the period called Romanesque), we see the spirit of the architect abandoning decrepid traditions in its search for new forms; these forms, together with their decoration, we perceive resulting rationally and directly from new requirements of construction; and the construction, in becoming conspicuous, we find becoming also elegant and even refined. The Clunisian architecture was an evident consequence of the Christian spirit, just as the



THE CHURCH OF ST. EUTROPIUS AT SAINTES.

AISLE; EXTERIOR.

institute of Cluny itself was, during the Middle Ages, the most natural result of that most practical epoch of Christianity. Thus it was agreeable to the spirit of Christianity in matters of architectural design to throw aside all concealment and deceit, and to regard form only as a logical expression of necessity; it was Christian to treat every part according to the value of the idea which called it into existence. According to the Clunisian architects, therefore, every part must have a necessary function, must perform a duty, could only arrive at perfection by adhering to these laws and by admitting no caprice; men of taste, though scarcely yet free from the elements of barbarism, they were the first to make these principles fundamental in the practice of art.

The Clunisians very nearly created a Renaissance in the Middle Ages; they revived the love of letters, and, for the time in which they flourished, had very advanced ideas concerning administration and government; they were legislators, diplomatists, politicians, men of science, and artists. If they did not create a Renaissance, it was because they formed a clerical aristocracy in the midst of the people. But could they have been anything else in the state of society at that epoch?

It is one of the most curious facts to be developed in the history of the human mind since antiquity, that perhaps we owe to the Clunisians the great national movement which caused their disappearance from the scene at the end of the twelfth century. It was a natural result of their influence over the affairs of the world, of their cultivation, of their love for arts and letters, and of their intimate relations with all sovereigns, that the Clunisians at length began to display in their monasteries a luxury until then unknown. It was in opposition to this luxury that Saint Bernard arose in the twelfth century; he saw that the monastic institution was going astray, and he proposed to arrest the evil. In this connection it is very interesting to read the letters of the Abbot of Cluny, Peter the Venerable, to St. Bernard, conjuring him to be moderate in his attacks, and to make no invidious distinctions between the white and black monks in the households of the order. Peter, in contrast to Bernard, occupied the position of an enlightened and tolerant man of the world, who perceived, in the reaction excited by Bernard, only one danger more for the monastic orders in general; he appealed to his charity. "Differences of color," said he, in one of his letters, "differences of

habitations and of costume, are opposed to mutual love, and weaken the unity of our order. The white monk is jealous of the black monk, and regards him as a monster. The black monk beholds the white monk, and considers him a hideous prodigy. Novelties irritate the mind which is rooted in regular habits, and it is difficult to approve that which is strange. These are the natural sentiments of those who attach themselves to exterior things, without regarding what passes in the bottom of souls. But the eye of reason, the eye of the mind, does not see in this way; it recognizes and comprehends that diversity of colors, usages, and habitations is as nothing among the servants of God, since, according to the Apostle, *We are no longer concerned with the circumcision, but with the renewing of the creature, and there is no longer Jew or Greek, male or female, barbarian or Scythian, slave or freeman, and Christ is all in all.* Intelligent men understand such things and comprehend them clearly; but all are not so; the intellectual sight is given to but few. It is, in my opinion, necessary to place our inferiors on a level, and to conduct ourselves towards them with a sort of distributive precaution, like him who said, *I have made myself all things to all men, that I might gain all.*"

But I pause, though tempted to cite the whole of a letter which is a masterpiece of the true Christian spirit, of good sense, good taste, and sometimes of delicate irony. Peter the Venerable and Suger shared between them the intelligence of the twelfth century. The fiery St. Bernard foresaw the influence of letters and arts upon the popular mind; he dreaded a return to the arts of Paganism, and believed that form was affecting dogma, and that philosophy was having an influence over faith. Although a man of genius and a profound student of humanity, he misunderstood the spirit of his contemporaries. He could hardly during his life stay the course of the torrent. Peter the Venerable was almost an antique philosopher; there was something of Cicero in his spirit, but with the grandeur, resignation, and repose of the true Christian. Suger was a statesman, who, although he did not participate in these monastic disputes, yet saw the danger and believed it more prudent to turn it aside than to fight it face to face like St. Bernard. This digression is necessary to a full comprehension of what follows.

The Clunisians had schools in their establishments, not only for the monks themselves, but open for the laity. If they had architects,

sculptors, and painters in their own body, they did not hesitate to spread abroad the knowledge of these arts; for, in order to build and decorate their churches and sumptuous cloisters, they had to make extensive use of lay workmen, and the Clunisians of the twelfth century were far too aristocratic to labor with their own hands. The more the Cistercians, under the lead of St. Bernard, affected to despise the plastic arts, the more refinement did the Clunisians put into their constructions, their furniture and vestments; the dispute grew warm, and the Clunisians, like all men who arrive at a high degree of civilization in the midst of a rude state of society, saw in their rivals the merest barbarians, and fought against their extreme Puritanism by filling the popular mind with the love of art as far as it was practicable. Their architecture, at about the middle of the twelfth century, was the expression of a singular refinement; but in thus elevating laymen to the rank of artists and skilful workmen, and inspiring them with the taste and practice of the arts, they developed among them those native inspirations which until then had remained dormant in the hearts of the people. Thus, in the Clunisian constructions, from 1120 to 1140, we see indications of a new principle: the Romanesque tradition began to lose its dominating influence, and many of the problems which arose in building were resolved by a course of inductive reasoning rather than by referring to antique precedent. Now it has always happened in France that whenever old traditions have been laid aside for the sake of a new idea, the new idea has been adopted with energy, and developed with all the haste of enthusiasm; we have a proof of this within a century, and the French were the same people in the twelfth century as in the sixteenth and eighteenth. The abbots of Vézelay, about the year 1135, built an entrance hall (*narthex*) to their church; this hall, though Romanesque in plan, details, mouldings, and sculpture, exhibited indications of certain new principles of construction, which gave promise of an entirely independent style.* It was very nearly at the same epoch that the cathedral of Langres was built, and here the Romanesque methods were entirely abandoned in the system of construction, although the details were almost Roman in character. In 1144 the Abbot Suger finished the abbey church of St. Denis; but, in those parts of the church which belong to the epoch of which

* See, in the "Dict. raisonné de l'Arch. franç.," articles ARCHITECTURE RELIGIEUSE, Fig. 22, and CONSTRUCTION, Fig. 19.

we are treating, we discover that the architectural revolution was completed; not only was the round arch abandoned, but the system of construction called Gothic was found. But where did Suger find his architect? Was he a monk, or a layman? The monk William* confined himself to saying that the illustrious abbot "summoned from various parts of the kingdom workmen of every kind, masons, carpenters, painters, blacksmiths, workers in metal, jewellers, and lapidaries, all renowned for skill in their respective crafts." But nowhere, either in the kingdom of France or elsewhere, had anything been built like the church of St. Denis; and it is necessary to observe also that Suger caused the works to be pushed on with the utmost rapidity, as he affected to fear that his successor would not continue his enterprise. On the 5th of June, 1140, King Louis le Gros laid the first stone of the foundation,† and on the 11th of June, 1144, the church being finished, he assisted at the dedication. It had the same length as the present church, but not its width. This haste explains why the construction was so negligent, why the foundations were afterwards found insufficient in many parts, and why the nave and transept had to be reconstructed a hundred years after; but it also indicates to us the idea of arriving promptly at an extraordinary result, and astonishing the multitude by striking a great blow, and this end was attained; for all the contemporaries, including even the Abbot of Cluny, Peter the Venerable, beheld, in the work undertaken and completed by Suger, one of the marvels of the West. But why this haste?

Suger was a practical man; he did not fail to see that the monastic institution was declining to its fall; and, while introducing into his own abbey of St. Denis, in 1127, a severe reform, and although contenting himself with a poor cell, in consequence of a letter of St. Bernard, in which the Abbot of Citeaux inveighed against the disorder of the monks of St. Denis,‡ he felt the necessity of restoring the glory of the royal abbey by a great enterprise, which, while it should surpass, without imitating, anything that the Clunisians had

* "Vie de Suger," Liv. II.

† "Ipse enim serenissimus Rex intus descendens propriis manibus suum imposuit, hosque et multi alii tam abbates quam religiosi viri lapides suos imposuerunt, quidam etiam gemmas, ob amorem et reverentiam Jhesu Christi decantates: *Lapides pretiori omnes muri tui.*" — *Letter of Suger.*

‡ In this letter (78th of the edition of Mabillon) St. Bernard said, "that the interior of the monastery was filled with men-at-arms and women, was occupied with worldly affairs of every kind, and disturbed by frequent strifes."

done, should disregard the scorn affected by the Cistercians for matters of art; on the contrary, he considered that the religious orders should be in the very front of progress, should be the fountain of new ideas, and should seduce the multitude with all the fascinations of novelty.

This is why the arts which were developed in France in the twelfth century differed in every respect from those of antiquity. The arts sympathized with that restless fever which flushed the society of the West, while in antique Rome the arts remained insensible to every political revolution or intellectual movement; they pursued their own course and kept apart from public affairs. The twelfth century in France was signalized by popular revolts, and feudalism received then its first blow at the hands of this very Abbot Suger; the royal power began to recover from the apathy into which it had fallen; the great reform of Cluny emitted its last rays of enlightenment; and the clerical power of the orders fast wasted away and stood like a stumbling-block in the path of political unity. Suger, in the midst of these things, distinguished himself by a course of political conduct always wise and prudent; far-sighted and exactly appreciating the men and the events among which he lived, he was at the same time moderate and tolerant; it was during the government of this statesman that architecture in the heart of the kingdom of France was completely revolutionized, and definitely abandoned the old Romanesque traditions of the monasteries to throw itself with renewed ardor into an entirely different path of progress. It was under his administration, about the year 1150, that the Bishop Baldwin II., the friend of the Abbot of St. Denis, built the cathedral of Noyon, — a work which presents the most striking analogies to those parts of the royal abbey church which still remain. It was also at about this epoch that the cathedral of Senlis was built, and it was in 1160 that Bishop Maurice de Sully began the cathedral of Paris on a plan and programme until then unknown.

After the Roman epoch, the cities of Gaul in the central and northern provinces lost, with their municipal institutions, the buildings which were the visible signs of those institutions; so that when, in the eleventh century, some of these municipalities conspired to conquer anew their ancient privileges, they were obliged to hold their meetings in the public squares; for in those unhappy

times, with the exception of the churches and castles, there were no edifices which were capable of containing a popular assemblage. Of all the powers against which the commons struggled, the abbeys were necessarily the most constantly hostile to the movement; while the lay nobles, the bishops, and the sovereign became now the protectors and now the adversaries of the new liberties, according to the interests of the moment.

In the twelfth century, the bishops found their authority singularly enfeebled by monastic establishments, which owed allegiance only to the Holy See, which were independent of all diocesan discipline, which absorbed the donations of the faithful, covered the soil with conventual and parish churches, and continually strengthened their temporal and political influence in the château of the noble and in the manor-house of the land-holder. There remained but one resource for the bishops; this was to avail themselves of the popular movement, to profit by the lay spirit just beginning to develop, in order that, at least in the cities, they might recover the diocesan power which they had lost. In 1160, then, they began to use every effort to supply those cities which were affected with this municipal spirit with vast buildings, in which the citizens might assemble around the episcopal throne. Their concessions to the popular spirit were necessarily large; adopting programmes opposed to those of the abbeys, they made their cathedrals vast open structures, unembarrassed by interior enclosures, possessing only one altar, the bishop's throne, and few or no chapels; in short, they built monuments very nearly fulfilling the conditions of the Roman basilica.* Under these circumstances, the people readily responded to the appeal of the bishops; wealth flowed into the episcopal treasuries in abundance, and in a few years the cities of Paris, Sens, Chartres, Rouen, Bourges, Rheims, Senlis, Meaux, Amiens, Cambrai, Arras, Beauvais, and Troyes had their great cathedrals, which still exist, though very much modified from their primitive dispositions. The laity alone, who were already organized into trade-corporations or guilds, were called upon to prepare and execute these great works; entering readily and fully into the views of the bishops, they not only followed the new programmes which were given them, but very soon adopted an entirely new system of construction and new forms of architecture and

* See, in the "Dict. raisonné de l'Arch. franç.," the article CATHEDRAL.

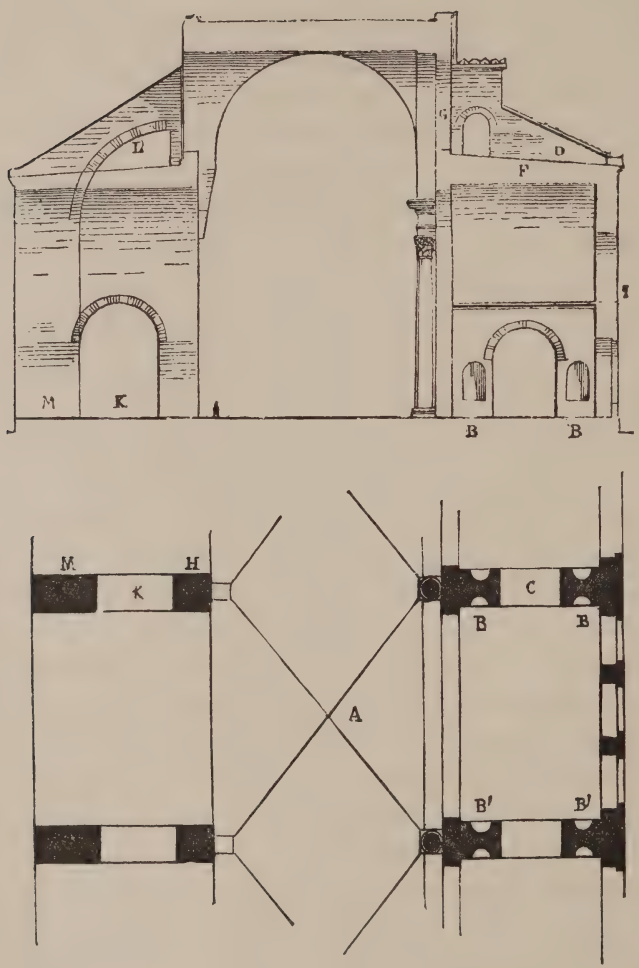
sculpture. They rapidly perfected themselves in the study of geometry and mathematics, and undertook to copy nature in their statuary and decoration.

In this new development of art, the peculiar genius of the French nation began to appear, — a genius which is as distinct from that of antiquity as it is from that of Italy and Germany in modern times. Up to the moment when the lay school appeared in France, architecture bore traces of Roman and Byzantine arts. Construction, strictly speaking, and decoration still proceeded from antiquity; the influence of western taste was not yet sufficiently energetic to cancel the effects of living traditions; the religious establishments progressed in art by modifying these traditions, never by losing sight of them. But the lay school, at the close of the twelfth century, broke from them entirely and replaced them by principles founded upon reason. These new principles may be briefly enumerated as follows: Equilibrium obtained in the system of construction by active resistances opposed to active forces; architectural effect, the simple result of the structure and the practical necessities of the work; decoration, derived simply from the local flora; statuary, tending to the imitation of nature and seeking dramatic expression. We must thoroughly understand these principles before we can comprehend anything in the architecture of the French lay, or Gothic, school.

To this end, therefore, let us observe, in Fig. 46, the transverse section and a fragment of the plan of a great Roman room, — the basilica of Constantine, for example. This room is entirely constructed of rubble, with brick facings, covered with stucco, except the columns and their entablatures, which are of marble, but which, in fact, are mere decorative features, as the monument can stand without their assistance. The roof of the central nave A (see plan) is composed of a series of cross-vaultings, constructed in the usual Roman manner, that is to say, by means of the penetration of half-cylinders at right angles. These vaults are of rubble, forming thus a concrete, passive mass without elasticity, like an immense shell hollowed out of a single block. Now, these vaults must be sustained and buttressed, for their enormous weight, if not supported by immovable masses, would soon occasion fissures, and the vault thus broken would fall in pieces. The buttresses B, therefore, are built opposite the thrusts of the vault at the point where the cross-spring-

ers start; these buttress walls are pierced at their base with an arch C, and are built to the height D (see section); the space B B B′ B′ in the plan, between each pair of buttresses, is arched over with a round vault bearing the terraced roof F, over which the ends of the

Fig. 46.



transverse vaults of the nave are left open at G, thus admitting light into the interior. The wall I, which is also pierced with open arches, is merely a screen sustaining no weight. If we deprive this construction of everything which is not essential to its perfect stability, we can, as indicated on the left of the plan and section (Fig. 46), reduce the interior piers to the vertical support H, increase

the size of the openings in the buttress walls, as at K, suppress the grand order, and, by opening the half-arch L, make a flying buttress, referring the thrust of the main vaulting directly to the outer pier M. This is the true structure.

It must be acknowledged that where the Roman method of construction was available, it could not be applied in a more simple, solid, economical, and grander manner than in this basilica of Constantine. But we have elsewhere stated how and why the constructive methods among the Romans, so admirably adapted to their political and administrative organization, were entirely impracticable in the West under the feudal régime. The lay architects at the end of the twelfth century were obliged to avail themselves of such means as were most readily at hand; and even had they recognized that the Roman method of construction was the only good method, it is not probable that the entire political organization of their time would have been changed in order to make this method available; for under no other circumstances could it have been admitted. Indeed, in order to build a great room like that described above, a very considerable space was required for the works in the beginning, for it was not possible to carry on a construction of this kind in parts; it was essential to carry up the whole building on a level at the same time; it was not practicable to complete one part and leave the rest to be finished afterwards; all the temporary wooden centres or forms, on which the rubble vaults had to be built, must be made and set up simultaneously; they must be sufficiently strong and solid to bear the weight of this rubble while the work was going on; it was necessary that, when these centres had been prepared and set up (and we must bear in mind the enormous quantity of wood required to make and support them), the vaults should be constructed with great rapidity, for a rubble vault in cement to be homogeneous and solid must be executed without interruption; to this end, vast quantities of rubble, bricks, sand, and, above all, of lime had to be accumulated at the works in the beginning. And, observe, that, before even this accumulation, the bricks had to be made and the lime prepared. The Romans were the only people whose organization was such that they could construct on such a scale.

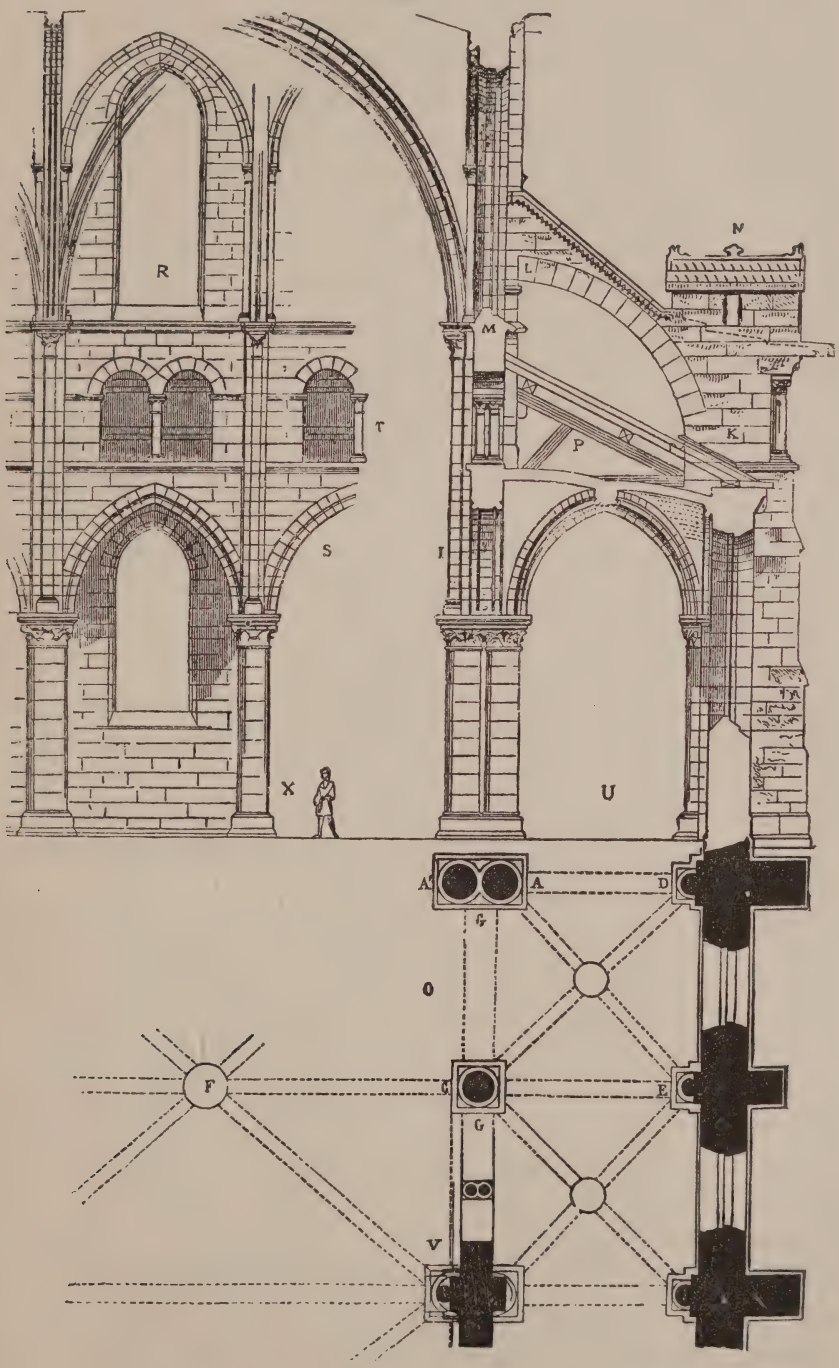
Now, let us suppose ourselves in France in the twelfth century, and that we are called upon to construct a great public building; we find at once that we are not absolute masters even of the site

of this building; it is disputed piece by piece, and only yielded after a long resistance; the wood, which we at once require for scaffolding and centerings, is not delivered to us in enormous quantities by fleets fitted out and employed for our use; on the contrary, we have to get our timber, stick by stick, among twenty proprietors perhaps, each one able to give us but a few pieces, or we must buy it, and, there being no fixed tariff, we shall have to pay dear for it if our necessities are known. Let us suppose, again, that our materials, instead of being brought to us, on a simple requisition, by disciplined soldiers or slaves, as in Roman times, have to be extracted in small quantities and from several quarries on different estates, and transported with such appliances as we can command, or by means of voluntary service; that lime is delivered to us successively, and in small quantities; that our workmen work by the job and do as little as possible, and must be paid roundly; and that occasionally the liege lord takes these men away to carry on war with his neighbor. How, under such circumstances, are we to construct an edifice like the basilica of Constantine? And, if we begin, shall we ever be able to finish it? We shall have to suspend work for the want of wood and lime before the edifice is half finished; and if, after many delays, we can go on with it, will our construction have the qualities essential to its perfect solidity? Under the conditions I have indicated, should we not, on the contrary, if we are wise and prudent, adopt such a method of building as will enable us to dispense with the necessity of accumulating such vast quantities of material at once, and to so divide our work that we can suspend and resume it without danger? And since material is obtained with so much difficulty, should we not use every effort to economize it, and endeavor to obtain great results by small means? Let us see, then, how we should proceed to make a great room analogous to the basilica of Constantine.

Our quarries supply us with stone for masonry in abundance, and, therefore, it is unnecessary to waste time in moulding and baking bricks. But stone is dear, we must economize it, and only use it where absolutely necessary. Instead, therefore, of building up a solid buttress of brick and rubble pierced at its base with an arch, let us, as in Fig. 47, erect two columns of stone A A′ and an exterior buttress B. Instead of vaulting each bay of the aisle with a round arch, perpendicular to the central nave, let us erect an inter-

mediate column C between every pair of buttresses, and thus obtain two cross-vaults A D, E C in each bay of the aisle to one

Fig. 47.



cross-vault in the nave. Then, while the nave wall is set astride the double columns of each main pier, the outer projection of the double capital at A will serve to support the springing of the pointed arch A D, across the aisle, while the inner projection at A′ will receive the base of the engaged colonettes or vaulting shafts at I, which run up on the inner face of the nave wall to carry the springing of the cross-ribs of the central or nave vault, which is divided in the centre of each of its great bays, transversely, by a pointed arch C F, starting from the intermediate column C. Instead of building solid buttresses to withstand the thrusts of the cross-vaulting of the nave, let us build up each outer buttress, B to K, and throw thence a half-arch, K L, against the outside of the nave wall, to replace the passive resistance of a solid buttress by the active resistance of an arch thrusting *inwardly* against the wall M, to meet the *outward* thrust of the nave vaulting. Thus is obtained an equilibrium of forces. But as we can scarcely trust to the abutment K alone to resist the thrust referred to it by the flying buttress K L from the nave vault, we will surmount it with a weight N, in the form of a pinnacle, to insure its stability. Our climate will not allow us to construct level terraces over the aisles, covered with concrete, tiled or paved, as the Romans did in Italy, so we will elevate the main vaulting high enough to enable us to construct a wooden lean-to roof P, under the high windows R (*clerestory*), of the nave wall; and then, to lessen the weight bearing on the main arches S of the nave wall, as well as to give light and air to the space occupied by the timbers in the roof P, we will open arches T (*triforium*), between the nave arches below and the clerestory above. Soon we find that the double columns A A′ are useless, and that we can substitute a single cylindrical pillar, as the main weight, if the construction is good, will in the former case fall between the columns. Now we can see perfectly well that this construction, composed as it is of an accumulation of bearings referred to single points of support on the first story, and, above, of thrusts opposed by active abutments, cannot have the solidity and inertia of the Roman structure; that there must be movements throughout the whole building; and that, therefore, the vaults should not be composed, like the Roman, of a concrete, homogeneous mass, but should be possessed of a certain elasticity, in order to enable them to yield to these movements without danger

of destruction. But even if the Roman vault were good construction under these circumstances, we have not at our command the vast quantity of timber necessary for the centres or forms on which it must be constructed, nor have we the requisite materials. We therefore must content ourselves with laying diagonal and pointed arches upon temporary centres, and then using these arches or ribs as permanent centres, enabling us to build between them, following their curves, portions of concave vaults, without the necessity of intermediate wooden centres, according to the Roman fashion.* Thus, if necessity required it, we could interrupt our works and resume them, execute them altogether or in parts, without affecting the solidity of the edifice in any degree.

Let us, like rational men, reason this matter out, without allowing ourselves to be seduced by traditions or consecrated forms. In our vaults, we reserve the full-centred or round arch for the diagonal ribs, these having, naturally, the longest diameter; and, in order to diminish the thrusts of the longitudinal and transverse arches of our vaults, as well as to elevate their summits to the level of the keys of the diagonal ribs, we make these arches pointed, by using two arcs, which we can cause to intersect at any desired height. By this expedient, we are no longer confined, as to a certain extent the Romanesque architects were, to the square plan of the Roman cross-vault, formed by the interpenetration of two equal semicylinders at right angles, but can vault over any area, whether a parallelogram, quadrilateral, triangle, or octagon, regular or irregular. Now, I admit that a section of the basilica of Constantine may by some be preferred to a section of any analogous building of the end of the twelfth century; but, because the latter conception is more complicated and requires more scientific combinations and a more profound process of reasoning, is it therefore more barbarous? Following the section of the basilica of Constantine, we can never make any new application of its principles. It is a finished conception, perfect, if you please, but immutable; it has nothing more to say; its construction can be repeated and imitated, but not modified

* See, in the "Dict. raisonné de l'Arch. franç.," the article CONSTRUCTION (Vaults). In Fig. 47 we have given, at A, the plan of the first story; at V, the plan of the piers above the columns; at U, the transverse section of the building; and at X, the longitudinal section, showing one bay. The cathedral of Arras was constructed after this system. We may still see at Sens, in the nave and choir of the cathedral there, dispositions analogous to those we have described.

without altering its essential elements; it is a cross-vault on a square plan, and cannot be anything else; while from the system of construction presented in the section (Fig. 47) can be deduced consequences without number, because the equilibrium of balanced forces enables us to indulge in all imaginable combinations, and opens to us paths ever new.

We are now prepared to examine critically the forms of that new architecture which arose from the lay school of the West at the close of the twelfth century. We can see at a glance that the tendency towards methods of reason as opposed to methods of tradition appears not only in the construction of the buildings of this epoch, but in their forms and decoration. We have learned that the ancient Greeks admitted only the vertical point of support, charged vertically with the lintel of a single stone; that the Romans long employed both the arch and lintel, without using any effort to harmonize their conflicting principles; that at the end of the empire, aided by the Greeks, they allowed the arch to bear directly upon the column, but without attempting to create any definite relations between these two features; and that the Romanesque school of the West developed combinations in which the column at last yielded to the arch, and became a comparatively unimportant accessory. (See Plate XI.) Among the first Gothic architects, the arch absolutely conquered the vertical point of support; it governed, not only the structure of the edifice, but its form; it became the fountain of all the architecture of the time. The Romans had, indeed, in many cases, submitted their structure to the arch or vault; but, I repeat, every point of support in their architecture was an inert mass, and their vaulted buildings were, so to speak, scooped out of a solid substance; they were cast in an enormous mould; but the architects of the twelfth century gave to every part of their buildings an active function. The column really supported, and, if its capital projected, it was to bear a superincumbent weight; if the profile and ornaments of this capital were developed, it was because this development was practically or æsthetically necessary. If the vaults were divided by many ribs, it was because these ribs were so many nerves, each fulfilling a distinct function. The stability of every point of support was regulated by the kind and amount of work it had to perform. Every thrust of an arch found another thrust to cancel it. Walls disappeared, and became only screens,

not supports. The whole system became a frame which maintained itself, not by its mass, but by a combination of oblique forces reciprocally destroying each other. The vault was no longer a concrete crust, a hollow shell in a single piece, but an intelligent combination of pressures always in action, and referring themselves to certain points of support disposed to receive them and to transmit them to the ground. Mouldings and ornaments were cut and arranged to aid in making these combinations intelligible; every moulding exactly performed a useful function; on the exterior, they were contrived, by projections of the simplest outlines, to protect the walls from the wash of rains; within, they were rare, only designating the various levels of construction or developing boldly to serve as corbels or bases. The ornaments were composed only with the local flora, for the architects wished to use their own material of design, without borrowing anything from the past or from foreign arts. These ornaments were always chosen for the place they were to occupy, were always visible and easy to comprehend, while remaining ever subordinate to the architectural and constructional lines of the building; they were sculptured in the stone-yard, before laying, and took their rank as necessary members of the whole.

In the Gallo-Roman buildings, erected during the decline of the empire, sculpture seems to have been spread at hazard upon walls, pilasters, and even upon the shafts of the columns; it would appear that, when the construction was completed, sculptors were let loose upon the rough walls to carve upon them as many figures as they would hold, without regard to joints or beds.

The Romanesque architecture, towards its decline, especially in Western France,* fell into the same abuse. But the lay architects of the French school at once abandoned these habits, which were the unmistakable marks of a declining art. The ornamentation, in their hands, became sober and rational; it occupied only certain parts of the architecture, was always subordinate, and so nicely balanced in quantity and treatment that it could neither be decreased nor augmented without injury to the general harmony.

We are very apt to judge of these buildings according to their present appearance, regardless of the fact that, during the lapse of seven centuries, they have submitted to many changes and mutilations; and to blame their original architects for faults and marks

* As in certain monuments of Poitiers belonging to the twelfth century.

of poverty in design or material which are really the result of subsequent additions or degradations. On the other hand, it must be admitted that, forming our judgment concerning the monuments of classic antiquity from their shattered ruins, our imagination, supplying that which is wanting, is apt to create beauties which never existed. It has already been remarked that very many Roman buildings would gain nothing by restoration; that which remains, the structure, being often all that constituted their grandeur or beauty. I would not say this, however, of Greek architecture, which, on the contrary, to be appreciated at its full value, should be supposed completed and surrounded by all its accessories.

Now, as our architecture has been inspired much more by Roman than by Greek precedent since the Renaissance, we have neglected one of the most precious qualities which mediæval architecture shared with Greek, but which did not appear in our Roman models. The Roman was not sensitive to the charms of outline, and concerned himself little regarding the general aspect of his monuments, which, from accidental points of view, therefore, were frequently anything but attractive to the eye. When, in imagination, we restore the actual mass of those great piles which were the especial marks of his genius, we find that, athough imposing from their dimensions, they never presented, in general lines or in combination of masses, the elegance which always distinguished the Greek works. I repeat, that light, the transparency of the atmosphere, the peculiarities of the site and of its neighborhood, were essential elements in every Greek design; how the angles of the structure should be profiled against the sky, or detached from the blue background of the mountains, were always matters of especial study. It is very evident that the Greeks never fell into the great modern architectural error of studying their designs only in *geometrical elevation*, without that very exact and very delicate regard for perspective effects which is essential to successful composition; on the contrary, they studied these effects, and allowed for them in their designs, like true artists, understanding very well that, when executed, their monuments could never be seen *geometrically*. Such calculations, the especial care of men endowed with a just and delicate feeling for form, never troubled the brain of the Roman, whose only preoccupation, it is easy to see, was the geometrical design, the positive considerations of structure, without regard to the destructive and distorting effects of perspective upon

proportions. Our imitation of Roman art has led us into the same error, and we combine our plans and elevations upon paper, too often regardless of the effects which the latter should present when executed and seen from the most usual points of view. But, like the Greeks, the French architects of the twelfth century had a very cultivated and refined sentiment in regard to effect; they caressed their architectural forms and shaped them with a tender regard for their outline in perspective, and never labored under the lamentable hallucination of modern times, that their monuments were to be seen perpendicularly to one of their faces, rather than from the accidental angles of view assumed by the beholder. The Greeks had a passion for architecture, and so loved it that, in going to and fro on their various concerns, they looked at their monuments; and their architects, therefore, took good care that the aspect of their buildings should be agreeable from every point of view, and, above all, that their outlines should be always happy. Now, the barbarous mediæval architects of France had the same artistic foibles; but in these modern days, when we have become decidedly Latin, and are at last really a sensible people, we are accustomed to go about our occupations without any of this weak affection or interest for the outline of a monument; or, if we think it the proper thing to be amateurs of the fine arts, and to be familiar with the productions of our era, we post ourselves directly in front of a façade, right on its centre line, and unhappy is the architect if one side is not found to be an exact copy of the other; for symmetry seems to be almost the only quality of design to which we are sensitive. By degrees our architects have abandoned the custom of composing their designs in perspective in their studios, or, at least, all their graphic studies are geometrical. I do not believe the Greeks did so, and it is certain that the mediæval architects always allowed for effects produced at accidental angles of view, as is evident from the manner in which all the angles and corners of their edifices were combined, from the profiles of their cornices, and from the way in which they placed pyramids or spires with an octagonal base upon prisms or towers with a square base. It is proved also by the fact that their buildings, when viewed in perspective, present many points of excellence and harmony which, when those buildings are drawn in geometrical elevation, can neither be seen nor suspected.

There is still another quality, which, although shared by our mediæ-

val architects with the Greeks, we have almost entirely lost, since we have imagined that we were Romans; I refer to the sentiment of form. Our lay schools of the twelfth and thirteenth centuries possessed this sentiment in a very marked degree; and if the architecture of the Greeks and that of the Ile-de-France in the twelfth century are opposed to each other in principle, and therefore necessarily very dissimilar in results, we find the most striking relations between them in everything which relates to elegance of form, profiles, and ornamentation, in certain effects of detail, in the study of outline, and in the emphasis with which those parts are treated which belong at once to construction and decoration; there is, indeed, no imitation, there is no identity of forms between the two arts, but there is a very strong resemblance as regards habits of thought and expression. If our mediæval architects did not avail themselves of the resources furnished by the application of color to form to the extent that the Greeks did, they discovered, in variety of form, effects of which the Greeks were ignorant; they were much more sensitive to form than to color, rather draughtsmen than colorists. The French, during the twelfth, thirteenth, fourteenth, and sixteenth centuries, had remarkable schools of sculptors and architects, and the seventeenth century abounded in excellent engravers; but our painters were never able to rival those of Italy, and our decorators, in the art of combining colors, never attained the excellence of the Orientals. The French, however, have shown themselves a people particularly endowed with all the qualities which distinguish the architect, and, if they do not continue to be led astray by errors of education, they will again develop these characteristics of their nature.

For some years past it has been generally recognized that the lay architectural schools of the end of the twelfth century were very profound and very refined, perhaps even too refined, in their art; that they exhibited a great inspiration and abundant resources; but the forms, the characteristic developments of this art, have never yet been seriously considered. It was by these forms that our mediæval architects gave utterance to the liveliest expression of the national genius, — a genius naturally supple, quick and fertile in expedients, mingling grandeur with a simplicity perhaps more affected than sincere, rational, yet at the same time fickle, changeable, and apt to prefer appearance to reality.

A people who, though civilized in the beginning, had for several centuries been oppressed by barbarian conquerors, and delivered over to secular or clerical feudalism; whose enlightenment had for a long time reached them only through the cloak of the monk, but who, nevertheless, in a few years built up a complete art, logical in all its principles, and novel in all its means and ends, from structure to form; a people who, having constituted such an art, pursued all its logical developments with enthusiasm, led astray by no side issues and admitting no reaction, — such a people have abundantly proved themselves possessed of a most extraordinary instinct, if they have not added to the history of art a chapter which has no parallel.

But let us return to our historical sketch. France, we have said, in the middle of the twelfth century, was so situated politically and socially that the cloister no longer had the monopoly of art. A purely lay school arose, which at once reacted against the monastic spirit by substituting investigation and experiment for consecrated traditions; the new principles thus developed were obtained, not from perfecting imposed types, but from science and the observation of laws not up to that time admitted in the art of construction. This school was a sort of freemasonry, drawing its inspiration from itself; while holding to the liberty of the workman, it never for an instant turned aside from the line of progress it had laid out; it abandoned not only the methods of construction used by the Romanesque architects, but their mouldings, their sculpture and fashions of decorating; in a quarter of a century it transformed not only the fine but the industrial arts, and absorbed the patronage of all the great bodies of state; though always of the people, it became so powerful that it was called upon to build the château, the municipal hall, the palace, the hospital, and the fortress, as well as the church, and even the very convent which had thus allowed the monopoly of art to escape from its bosom. In this great popular art-movement the individual artist had his work to do, but he never affixed his signature; he was anonymous; the movement was the result of a craft-spirit which brought into complete discipline all that perfect liberty of thought and act which was necessary to the art-workman, and all the science and skill which were essential to the work; there was no power to hinder this school from a natural and triumphant development; it everywhere gave free expression to its tastes and preferences, its hatred of injustice and oppression, and even its ten-

dency to satire. So thoroughly did it assert its independence in works of art, that, when this liberty finally became license, there were none to arrest it; but it was by this license that at last it fell, after having forced its principles to an exaggerated and unnatural development, its workmanship to an unnecessary perfection, and its science to the last limits of possibility.

Now, it must be remembered by those who would reject Gothic art as a motive for modern design because it arose in the Dark Ages, that this emancipation of the artist and of the laborious classes — an emancipation which restored them to their duty of interpreting by works the national genius — had nothing in common with mediæval politics. Men who labored incessantly in their intellectual development, and in perfecting the practical means of an art which belonged to them and of which they alone were masters, must not be confounded with those petty feudal tyrants, who, though they swarmed over the surface of politics and disturbed it with continual brawl and bloodshed, had no influence either for or against this peaceful society of artists and artisans, were powerless to arrest or develop its progress, and were only too happy to avail themselves of its harmless industry and intelligence. These artists and artisans did not make the state of society in the midst of which they lived. They did not obtain their independence by disturbing the world with propagandas and revolutions. But it was by labor, and by unity of labor, that they sought to isolate and elevate and enlarge the circle in which they were placed. Shall we be so ungrateful as not to recognize these efforts? We honor with statues a few commonplace artists, who are nothing more than plagiarists of arts foreign to our country and our genius; but shall we have no recognition in our hearts for men who, in a position so modest, were the first who expressed national unity, and the revival of learning, of art, and of science, by an outward and visible sign?

This unprecedented development of moral power and influence, exhibited by the lay school at the end of the twelfth century, cannot be explained by the theory that the Romanesque or monastic schools had fallen so low that an immediate and radical reform had become necessary and natural; on the contrary, if we examine into the history of these schools at the time when the great lay school began its triumphant career, we shall find that they were all flourishing and producing works of rare elegance; but they were *divided.*

At the beginning of the twelfth century, the Cistercian building did not resemble the Clunisian, the architecture of Poitiers had no analogy with that of Normandy, and this differed essentially from the architecture of the Ile-de-France, which, in its turn, was distinct from that of Auvergne and Limousin; the Romanesque art of Burgundy and Lyons was not that of Champagne; yet all these schools possessed the elements of life, their executive facilities had been brought to great perfection, and they each, reflecting as they did the characteristics of the people or traditions among which they had grown, exhibited distinctive traits of originality. Thus, in Burgundy, the Romanesque architecture of the twelfth century was entirely Clunisian; in Champagne it was rather Cistercian; in Auvergne it was delicate, elegant, and held to local Roman traditions and to Byzantine influences, which had come by way of Perigord and Limousin; in Poitiers it was confused, overcharged with sculpture, and still retained the imprint of Gallo-Roman arts; in Normandy it was severe, methodical, scientific, powerful, refined in construction, but poor in decoration; it was the expression of a people positive and calculating in disposition, tenacious and self-contained, but without traditions; in the Ile-de-France this architecture was refined, quiet, pliant, and already bore the marks of that reserve which is always the indication of an elevated taste. In Saintonge, the Romanesque architecture of this era was plainly the faithful exponent of the mild and tranquil people of the West, made up of firmness and refinement; this approached, perhaps, nearest of all to the Greek art of the Byzantine period; it possessed all its charm, all the elegance and purity of its details, all its delicacy and frankness of execution.

Let us study, for example, in Plate XII., the side elevation of the church of St. Eutropius at Saintes. Would you not take this for one of the Byzantine monuments from the shores of the Adriatic, but better reasoned in construction, and even more Greek than they in the execution of its details? The lower windows give light to a crypt, the bays of the aisles within are indicated externally by discharging arches, in which, as it were, the vaults penetrate through the outer walls. The architect understood how to give grandeur to his order by the arrangement of his apertures; he considered, not without reason, that if the archivolts of his windows were concentric with the discharging arches, to which we have referred, they would

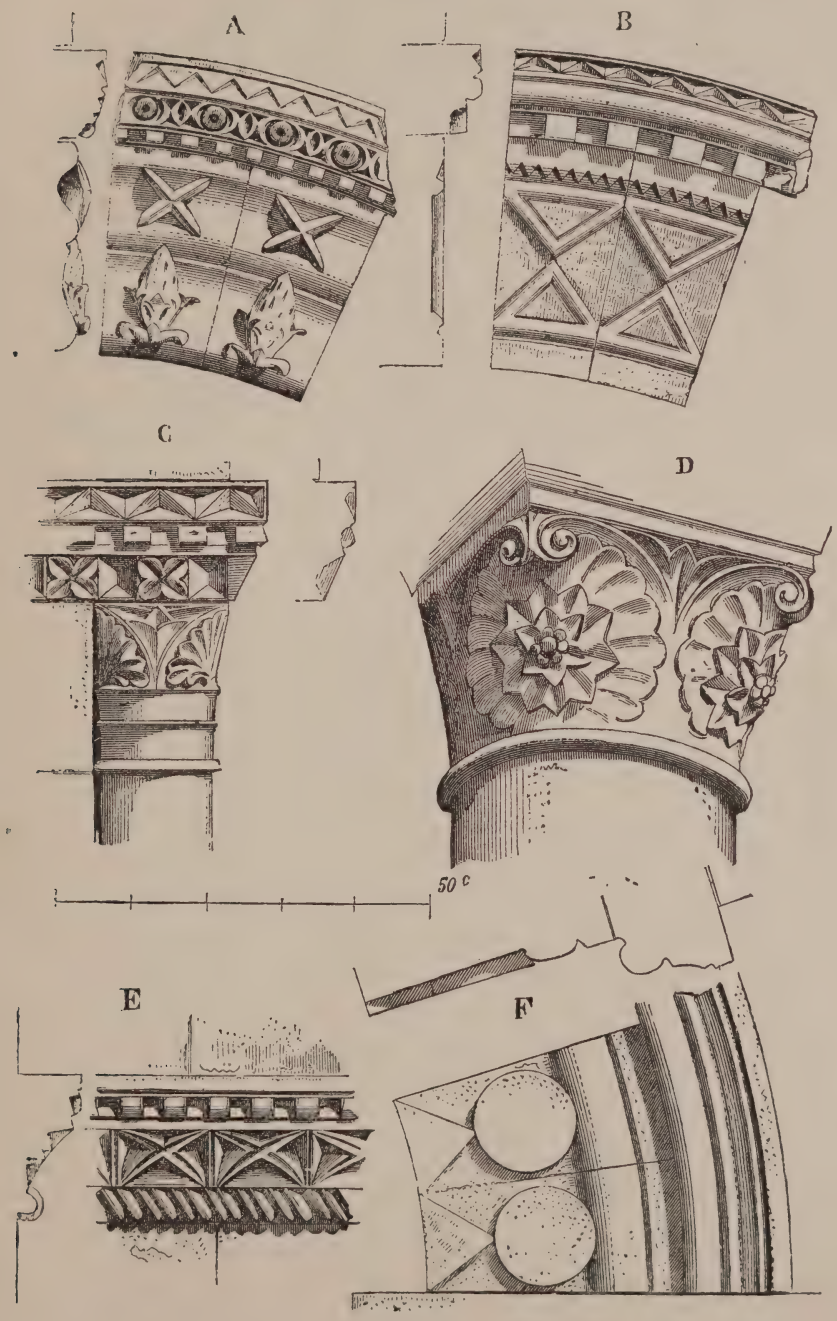
give to these bays too much importance; he felt that concentric arches of different diameters, repeated one under the other, would have a disagreeable effect, so he preferred to pierce the wall under the crown of the main arches with circular windows, which, while admitting light into the interior, serve also to indicate that the interior vaulting rises as high as the outer discharging arches. The whole construction is composed of small materials, such as could be carried up by hand, without the aid of machines. The profiles of the mouldings are extremely delicate, and drawn with consummate art. The ornaments are but an embroidery, whose purity and charming arrangement illustrate, without disguising the mouldings. Notwithstanding this poverty of resource and simplicity of means, this architecture has a grand effect; it is easy to understand, and plainly expresses it destination. This is one of a hundred examples not less remarkable, which were produced by the best schools of the West in the beginning of the twelfth century; and if we compare this art with the Western Italian architecture of the same or nearly the same epoch, as instanced in the exterior side view of the cathedral of Pisa, in which there is no indication whatever of the interior structure, which in proportions is not agreeable, in aspect is cold and monotonous, in details deplorably executed, with profiles imitated from the last epoch of Roman art, — in which example, I ask, is the real science and the higher art? It is true that the side of the cathedral of Pisa is a facing of costly marble, that it rests upon a beautiful platform of the same material, and is admirably placed, while the church of St. Eutropius at Saintes has been thrice devastated, its base is lost in rubbish, defiled with filth, and overgrown with weeds and brambles, and it is in France; yet need it shrink from the comparison?

I think it well to present, in Fig. 48, a few of the details and profiles which decorate this architectural fragment.* He who has had the least experience in the effect of architectural profiles, and who has considered how profoundly reasoned and tenderly felt were the Greek profiles of antiquity and of the Byzantine epoch, cannot fail to detect a close analogy between the Greek mouldings and these, in

* The profile A is the archivolt of one of the high windows; the profile B belongs to one of the main discharging arches; the detail C is a capital of one of the high windows, and D is one of the capitals of the grand order supporting the arcade. The profile E is of the string-course under the high windows, and the design F is the archivolt of the windows of the crypt. These arches have all different profiles of mouldings and different decorations. Those of the crypt windows are the only ones alike.

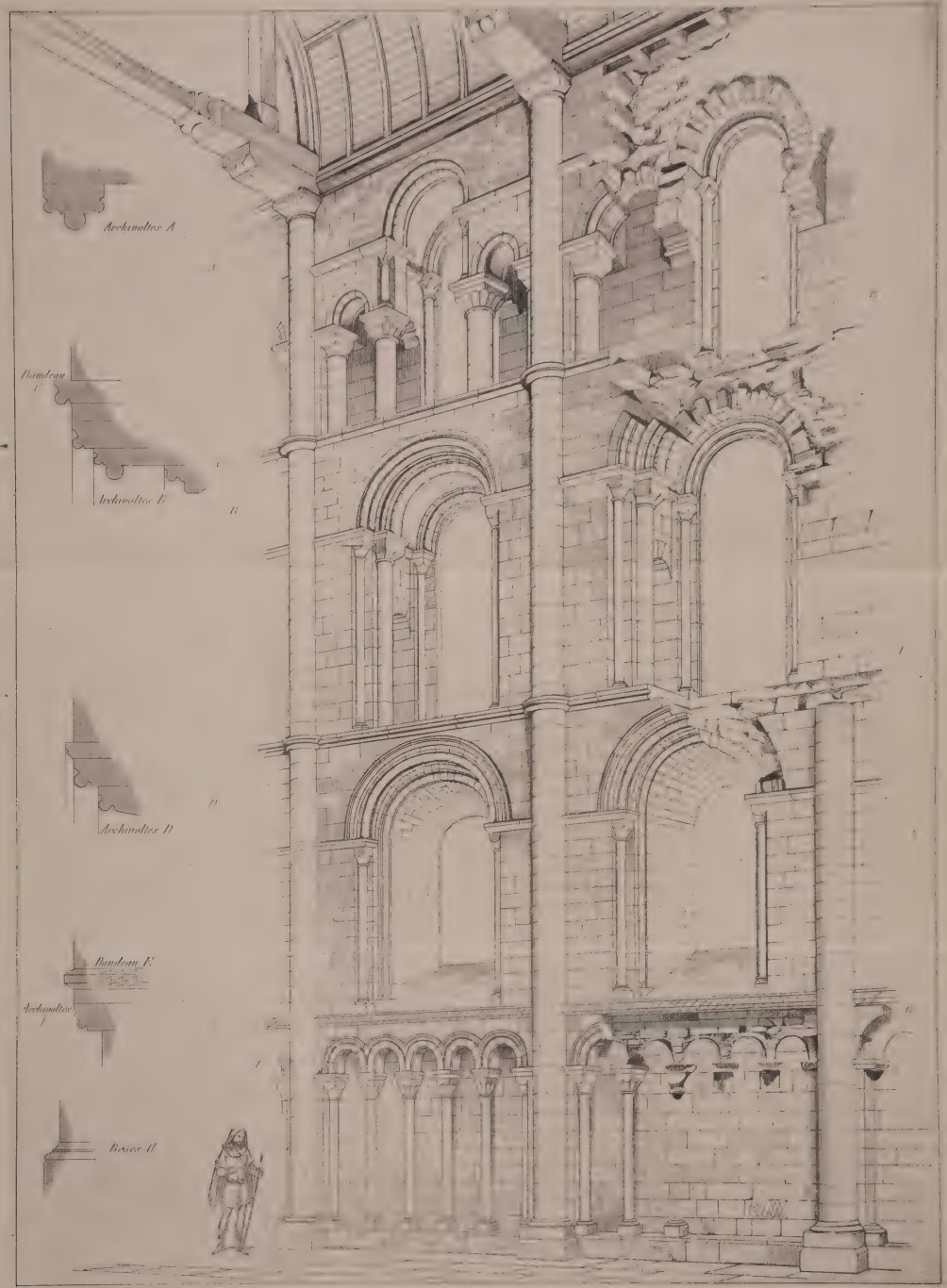
method of composition, in knowledge of effect, in freedom from the restraints of precedent, and in their management of the contrasts

Fig. 48.



of light and shade. But it is useless to enlarge on topics so delicate and so entirely matters of artistic feeling; reasoning will prove nothing to those who have not the sentiment of art.

At about the same time the Clunisians constructed the nave of Vézelay. (See Plate XI.) The Romanesque of Burgundy is as robust and even rude as that of Saintonge is fine and delicate. At Saintes the capitals are short, of very slight projection, and covered with sculpture like jewelry; the mouldings are flat, and composed of a great number of members; the ornaments are a mere embroidery; the proportions are elongated, and almost slender. At Vézelay, on the contrary, the construction is made up of large stones, the proportions are stumpy, the capitals are enormous and widely spread, to carry arches without mouldings; the mouldings are large and simple in composition; the sculpture energetic, strong, and still savage, but full of style; we recognize here an art which knows its power and would fain rule. The Norman school resembles neither of these; to find the best specimens of that branch of the Romanesque school, preserving its characteristics through the twelfth and thirteenth centuries, we must leave France and seek them in England, where this style was developed at the end of the eleventh century. The Normans were skilful constructors; yet they did not undertake to build very wide vaults until such vaults had long been common in Burgundy and the Ile-de-France. Even so late as the close of the twelfth century, they continued to cover their high naves with wood, but they gave to their vertical constructions a monumental character which cannot be found elsewhere. The Normans, although occupied by great political enterprises, were endowed with a subtle and positive spirit, evidences of which we can see imprinted upon their monuments. It is easy to recognize this in the earlier parts of the churches of the Trinity and St. Stephen at Caen, in the remains of those at St. Wandrille and Jumiéges, and especially in the monuments erected by them on the other side of the Channel. The transept of the cathedral of Peterborough, for example, built about the middle of the twelfth century, perfectly expresses the peculiarities of the Norman style at the moment of its greatest splendor. (See Plate XIII.) Here we see great precision in masonry, careful execution, but no sculpture; a well-reasoned and intelligent construction, a fine feeling for proportions, monotonous profiles, but carefully adapted to the place they occupy, and a seeking for great decora-



THE CATHEDRAL OF PETERBOROUGH.

PART OF THE NAVE, INTERIOR.

tive effects. Plate XIII., on the right side, indicates the system of construction employed; the walls are not open in their lower parts, and they are decorated with an arcade G applied to the surface. Along the second range of windows, at I, the architect has reserved a passage in the thickness of the wall to give access to the glass, and thus facilitate repairs and cleaning. At the height of the third range of windows, the construction is still more lightened, and the passage K forms an open arcade along the transept. Under every tie-beam of the wooden roof, engaged columns, starting from the pavement, divide the order into bays. If this architecture is further from Roman art than that of any other Romanesque style or epoch, it must be admitted that it wants neither grandeur nor sagacity.

While the Romanesque architecture of Burgundy was robust, bold, and full of life, while that of Normandy was grand and comparatively scientific, while that of the ancient Celtic populations of the West was elegant, delicate, and refined, that of the Ile-de-France, at the beginning of the twelfth century, was simple, modest, and Latin in construction and form, yielding to the nature of the material employed, and already giving indications of a chastened taste, as far removed from exaggeration as from timidity. The valleys of the Middle Seine, of the Oise, and of the Lower Marne are still occupied by a great many buildings of this epoch, charming in plan, learned in construction, sober in sculpture. But what distinguishes this province more especially from all those which compose France proper is variety. In Auvergne, for example, all the edifices of the eleventh century resemble each other, and appear to have been built under the same patron and by the same workmen. The same remark is true of Burgundy, of the Upper Marne, and of the ancient territory of the Ædui. And there are certain ideas and principles in Norman architecture which never vary. It is the same with Poitiers and Saintonge. But in the Ile-de-France, even in the Romanesque epoch, there appeared a liberty and variety in the types indicating incessant efforts to shake off the restraints of tradition. It was from this series of efforts and experiments that that architecture was finally deduced, which Suger, as I have said, seemed to have inaugurated by a bold and sudden stroke of original genius in the abbey church of St. Denis. This architecture soon found its way into other provinces, according to

their respective sensitiveness to receive and be modified by new ideas. Thus to the active and enterprising spirit of the Burgundians these innovations were peculiarly grateful, and were soon adopted by them; nor did the Normans long delay to appropriate the new principles in their fashion. But the provinces of the centre and west neither comprehended nor adopted them; their sluggish spirit, and, it must be admitted, the perfection to which the Romanesque architecture had already been brought among them, left no desire for innovations. They were content for the time with what they had, and did not desire change. In fact, the architecture called Gothic, of which we speak, did not penetrate into these provinces till very late, towards the close of the thirteenth century, and even then it was received as a foreign importation, or rather as an irresistible invasion to which all local systems of art had to yield.

It is a fact, demonstrated by history, that the arts have but a very feeble influence in the midst of a highly civilized society, possessing a settled government and good laws; here they become, naturally, a mere matter of luxury, modifying less and less the manners and customs of the nation. But when society is in process of formation, the case is very different; art becomes then a powerful agent in the development of civilization; and if there exist any points of affinity between the races and ancient local traditions, it becomes one of the most active instruments of unity. Thus, in the first years of the thirteenth century, the royal power availed itself of this means to assist in its efforts towards national unity; the result was, that wherever this art-influence was applied and felt, it manifested itself in the construction of a cathedral (which was a civil as well as a religious monument), built according to the new principles which were first admitted at St. Denis, in the centre of the royal domain. The civil and military kept pace with the religious architecture; and in the city where a Gothic cathedral was constructed, civic buildings, mansions, and fortifications arose at the same time, and in an equal degree divested of the influence of Romanesque traditions. If there ever was a Renaissance in France, it was at this epoch, when the lay spirit entered upon its illustrious era of natural and unrestricted action, when arts and crafts were freely developed in the bosom of a nation which at length recognized its own nationality, and gathered itself up as a concretion of intelligent powers after ages of obscurity and misery.

I cannot, within these limits, undertake to describe in detail the principles and spirit of the French architecture of the thirteenth century; this work has been done elsewhere; I shall content myself, therefore, with considering those qualities of this era of art which especially interest us, and may be applied to art-development in all times and in every state of society.

An architecture whose form is sufficiently elastic, and whose principles are sufficiently broad, to be adapted to all the complex and changing requirements of civilized society, is no common thing; if such an art does exist, we have a very serious interest in studying its form and examining into its principles. In the state of scepticism into which we have fallen in respect to art, we have very little real interest in the emulation of rival schools, or in the pseudo-Greek, the pseudo-Roman, or the pseudo-Gothic which they give us. But what we are concerned about is, that public and private buildings should, in plan and construction, be made to conform to our usages, to our climate, to our national spirit, and to the progress which has been made in science and practical knowledge. Indeed, to state this point frankly, I dare to say that, while it is impossible, in building a Greek or Roman edifice, properly to employ in it certain materials, like iron, which modern ingenuity and industry have developed into usefulness, the principles and methods of building developed by the lay architects at the end of the twelfth century admit, without effort, the employment of every new material, and are adaptable to all the requirements of modern society. Again, economy, on account of the multiplicity of these modern requirements to be satisfied, has become a necessity. Now we cannot avail ourselves of the absolute and limited principles of the styles of antiquity without adopting their methods, which were very costly; we are therefore, in so doing, dragged into expenses which are not in proportion to our resources; or, if we would change these methods, we falsify the essential principles of antique art, and produce only works without artistic value. To build Roman columns of brick or wood covered with stucco, or even of low courses of stone, to surmount these columns with lintels made up of stone facings hung upon concealed trusses of iron, or applied to concealed arches of brick, in order to avoid the expense of those long blocks of granite and marble which the classic styles require, is to use other methods than the classic, which we imitate, and to substitute an absurd and ephemeral falsehood, whose cost is not

justified by the real value of the object attained; more than this, it is a want of good taste, for good taste in art consists in knowing how most gracefully to confess the truth.

The architects of the lay school of the Middle Ages, notwithstanding the tendency which has at all times been manifested by our countrymen for *show*, always caused the form, the *appearance*, to be modified by the materials and methods they employed. They never, moreover, gave to the saloon of a château the appearance of a church, to a hospital the aspect of a palace, to a city house the outside of a country house; everything was adapted to its place and actual uses, and confessed its own character; if the apartment was spacious, the windows were large; if small, its outer apertures, in character and size, were fitted to the area to which they admitted air and light; if a building was divided into stories, the fact was acknowledged on the exterior. In short, *sincerity* was one of the most striking qualities of early Gothic architecture; and this same quality of *sincerity* is one of the essential conditions of style in all arts, and also one of the conditions of economy as regards expense. It is a singular fact that these lay architects were so bold and inventive in their construction as, at length, actually to go beyond the material resources at their disposal; they preceded the industrial movement of their time; they wanted the practical means of expressing their great activity of theoretical science and imagination. But if one of them should arise from his grave of the thirteenth century to look upon the wonders of the nineteenth, while he would be amazed at the resources of our industry, he could not but see that they far outstrip our capacity for using them; if the art of his time was eager to profit by a great industrial development which it sought for in vain, the pretended respect of the art of our time for *venerable doctrines* (which no one, by the by, has taken the trouble to analyze) prevents us from employing the means which abound in the nineteenth century. The result of this state of things is the isolation of the modern artist; instead of appropriating and eagerly anticipating the inventive activity of the day, he holds himself aloof, exclusive in his knowledge of ancient precedent, bigoted in his respect for ancient authority; he tortures the discoveries of modern science, which are imposed upon him by the spirit of the age, in order to make them subservient to the forms and fashions which, in his blind creed, have been declared immutable and sacred; he adapts the new

idea to the old form, instead of modifying the old form to obtain the full advantages of the new idea.

The modern architect is too often unwilling to create beauty out of the means which are furnished him by the age, and then complains that the age has lost the taste for beauty; he complains that the engineers, for example, intrench upon the domain of art, without ever succeeding in the production of works of art, yet he studiously refrains from dropping his superannuated routines and from placing his artistic intelligence and training at the service of the new and practical requirements of the day. I admit that all the architects do not thus hold themselves aloof from progress, and that the most numerous defenders of these exclusive doctrines touching architecture are in the very imposing body of *amateurs;* for every one likes to think himself somewhat of an architect; which fact, indeed, very much honors, but somewhat injures the art. But I am persuaded that those architects who, avoiding scholastic prejudices and vulgar opinions, would take the broadest ground and reason about their work as our mediæval predecessors reasoned, would before very long succeed in substituting a more healthy architecture for that now prevailing. In the end, reason must always get the upper hand; I say, in the end.

The lay school of the thirteenth century produced a true architecture, because it was pliable to all the uses of architecture, its principles being based upon reason, which is elastic, and not upon form, which is tyrannical and unbending. Prejudices of form never laid their incubus upon the builders who erected such a prodigious quantity of churches, palaces, châteaux, and civil and military works in the thirteenth century; and yet, with all this freedom, there is not the smallest fragment belonging to this epoch which does not bear the indisputable stamp of its origin and time.

It should be understood that it is impossible to separate the form of the architecture of this epoch from its structure; every member was the result of a constructional necessity, just as, in the vegetable and animal kingdom, there is no phenomenon, no individuality, which is not the result of an organic necessity; however many kinds, species, or varieties there may be, the botanist and the anatomist are never at a loss about the function, place, age, or origin of any separate organ which they may undertake to analyze. But we may deprive a Roman monument of all its decoration, we may remove its appar-

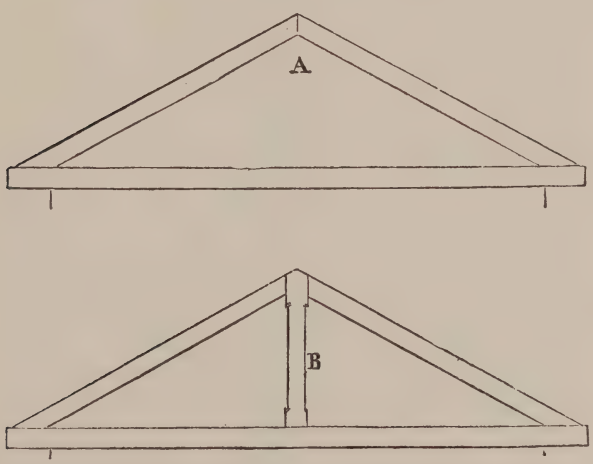
ent form without any prejudice to its structure, or, on the other hand (as has been done at the Roman Pantheon, for example,) we can clothe a Roman structure with a decorative form which has no necessary and intimate relation with it. But it is impossible to remove from an edifice of the thirteenth century or to attach to it any decorative form without injury to its solidity, its wholeness, its organism, if I may so express myself. This principle, so easy to comprehend, and concerning which any one, on examination, can satisfy himself with a little care, proves to us that, notwithstanding its apparent complication, the art of the thirteenth century was constituted in direct obedience to the necessities of construction. This very quality of Gothic architecture has been made a subject of reproach against it; thus it is sometimes said, "Show us the form, the *order* of architecture in this style, give us the rules which govern this form; we see the construction, but prove to us that the form is not a pure fancy of the artists, the mere vagary of their capricious imaginations." To this I would reply: "This form is not the result of caprice, since it is the expression (the decorated expression, if you please) of the construction; it is impossible to give any absolute rules governing this form, as its peculiar quality is to lend itself to all the necessities of construction. Impose upon me a definite construction, and I will find for you naturally the forms which should result from it; but if you change the construction, the forms also must be changed, not in their spirit, for this spirit consists simply in expressing the construction faithfully, but in their appearance, which is varied according to the new practical conditions of the problem."

I admit that all this would be too subtle for a Roman, who would find it much more convenient to dictate the structure, and to leave its *show* to the decorators, without concerning himself to know whether this show was a frank acknowledgment of the construction or not. Yet we cannot regard as bad that method which proceeds from an entirely different basis, and, in an art so serious as architecture, undertakes to make the visible form subordinate to the necessities of the construction and the programme. It is worthy of note that this intimate alliance between the appearance and the structure is not only appreciated by artists and men of culture, but it satisfies the eyes of the multitude, because their eyes have an instinctive logic. Thus, in Greek architecture, an order in which all the members fulfil a useful and necessary function satisfies the eyes even of

those who are entirely ignorant of the necessities imposed upon it by the laws of statics. In the same manner, cross-vaultings reciprocally abutting against each other and referring their resultant pressure to a slender column, as in the refectory of St. Martin-des-Champs, for example, satisfy the eye, because, without understanding how mutual thrusts of vaults obtain a neutral result, any one can instinctively comprehend that this column can be safely slender, since, as its duty is merely to present a point of resistance to neutralized thrusts, a rigid vertical line alone is necessary.

A few examples will suffice, I hope, to make it intelligible to all that the lay school of the twelfth century was made up of men who were not only subtle reasoners and skilful geometers, but were eminently endowed with those delicate qualities which we all recognize among Greek architects. I have just said that the eye has an instinc-

Fig. 49.

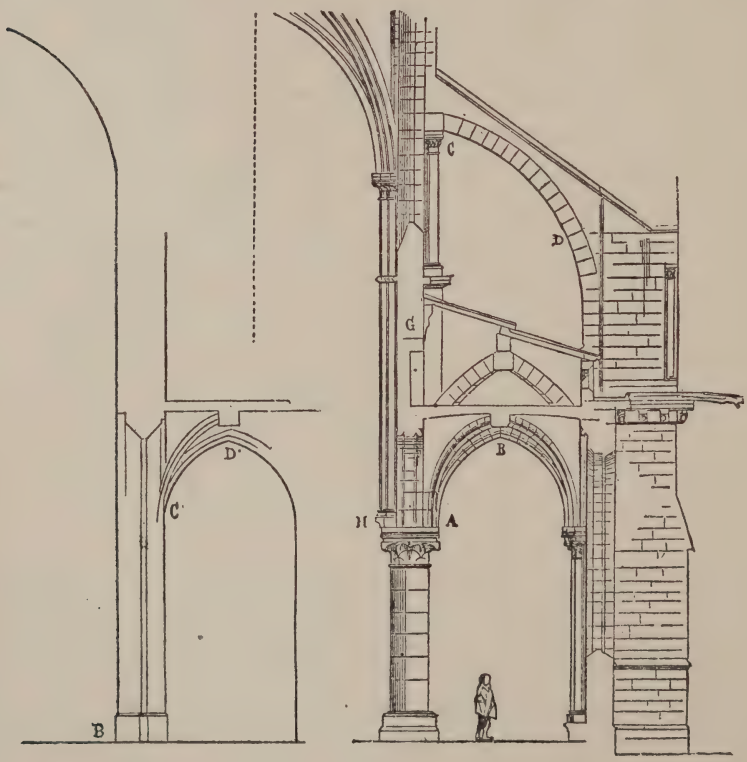


tive logic; I refer to eyes which see without prejudice, — the eyes of the public, in fact. It is a singular phenomenon that what we are accustomed to call "illusions of the eye" are but instinctive premonitions of certain natural laws confirmed by scientific observation, as if God had endowed the human eye with the faculty of intuitively foreseeing that which reason presently imposes as a law. And why should not our eyes be provided with a particular instinct, like our conscience, which, before the existence of law, possessed the sentiment of justice and injustice, good and evil?

Thus, for example (Fig. 49), we construct a wooden truss A, com-

posed of a tie-beam and two principal rafters, that is to say, a primitive truss. In construction, this tie-beam, however straight and horizontal it may be in reality, will appear, by a common optical illusion, to bend downward in the middle. But if I place a king-post B, suspending the centre of the tie-beam to the apex of the roof, the illusion disappears, and the expedient, which I have employed as a precautionary measure, to prevent the sagging of the tie-beam, satisfies the doubt of the eye. This illusion then has warned me of the real weak point in my truss; it has prompted me to find out the only means by which the difficulty can be avoided; the illusion provoked the investigation of that which experience demonstrates to be a law. But let us proceed to more delicate examples.

Fig. 50. Fig. 51.



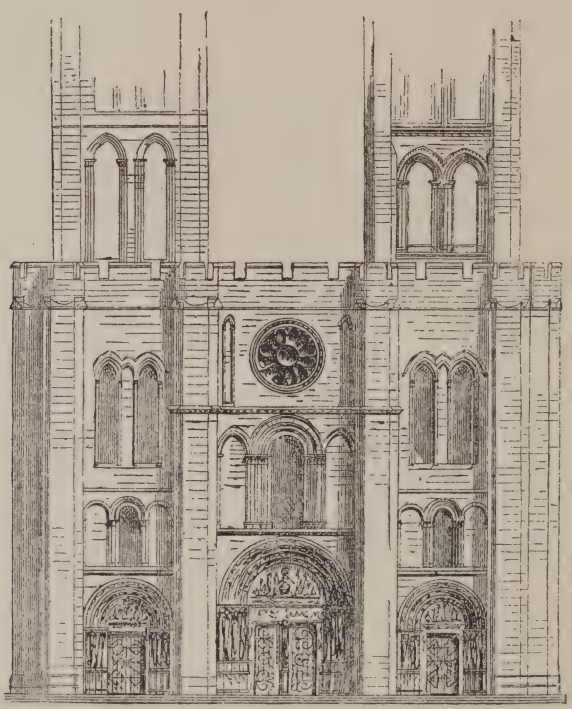
If, in Fig. 50, I construct a perfectly vertical pier, and if to the flank of this pier at C I communicate the thrust of a vault, the arc C D will cause the pier to seem to bend inward at the point of thrust C, especially if, at A, I have another arc which operates to

thrust the summit of the pier outward. This is an illusion; but this illusion, which disturbs my eye, prompts me to devise an expedient at the point of inward thrust C which shall destroy the unpleasant effect. To increase excessively the thickness of the pier A B would be a certain means of obtaining this end, but I do not wish to give to this pier more thickness than is necessary. I investigate the matter, therefore, and I find the combination in Fig. 51 adopted by the architects of the twelfth century. By means of this interruption of the vertical lines at the height of the springing of the lateral arc A B, the illusion is destroyed; the pier, though in reality lighter, seems not only vertical, but more powerful than the other, which arose without interruption. Now, my experience proves to me that this optical illusion was but a premonition of a law of statics which I must discover and obey. The fact is that the resultant of the thrusts of the arcs A B is destroyed by the vertical weight A C, acting upon the line A H. Now, having a flying buttress C D, which cancels the outward thrust of the high vault, the equilibrium of the two forces thus combined results in a vertical bearing, which augments that of the intrinsic weight of the pier A C. All the thrusts are thus concentrated in a vertical line running down the axis of the column E, whose diameter I am authorized to diminish to the point of its capacity to bear the specified vertical weight. Now, as the springing of the arches which uphold the wall G and of the three ribs (one transverse and two diagonal) which constitute the lateral vault, besides the direct perpendicular bearing of the pier which sustains the high vault, all have to rest upon the capital A, I am compelled to give to the abacus of this capital a large bearing surface. I compose this capital, therefore, with a view to this important function; it must be strong, broad, and solid; its profile must indicate the duties it has to perform, its ornaments must be robust in character, and, instead of cutting into the mass of the capital and thus weakening it, should be contrived to furnish it with actual reinforcements at the points where it is charged with the superior weights.

On account of the principle of elasticity which constitutes my construction, the column can even be moved aside from the vertical line, without any inconvenient results, precisely because it has been reduced to a safe minimum of bearing surface, so that any slight oblique movement, which might take place, by the settling of the

masses of construction above, would not be so apt to break off the edges of its base or capital, as if the column were thicker and less able to yield to the accidental pressure. By means of the projections of my capitals and of the supplementary corbels H, where necessary, I have gathered together in the axes of the lower columns the resultants of the combinations of thrusts in the upper vaulting, and these projections and corbels, far from destroying that aspect of solidity which the eye requires, confer upon my construction a character of robustness, and my ornamentation and profiles are composed so as to aid the effect resulting more directly from the general structure.*

Fig. 52.



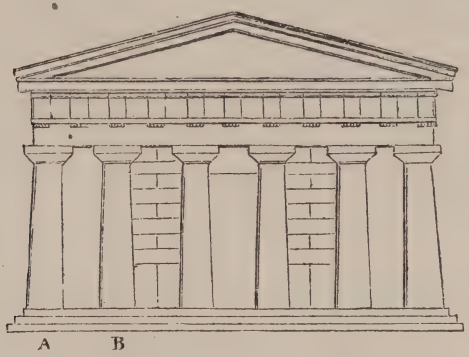
If we construct a façade whose two extreme lateral lines are perfectly vertical, this façade, when constructed, will be apt to seem larger at the summit than at the base (see Fig. 52); this also is an illusion, and one most offensive to the eye.† The Greeks, therefore,

* See, for the most ample details concerning these kinds of constructions, in the "Dict. raisonné d'Arch.," the word CONSTRUCTION.

† The former western façade of the church of St. Denis. We can see the same difficulty in some façades belonging to the close of the twelfth century, as in that of the church of Notre Dame de Mantes, for example.

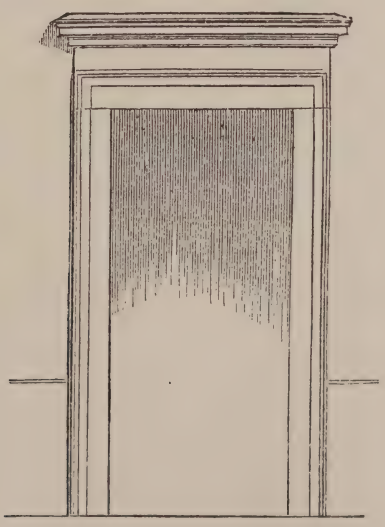
whose senses were cultivated to the last degree of perfection, were always careful, in the façades of their monuments, to incline the extreme lateral lines inward. In constructing the peristyles of their temples, they were not content to give to the angle-columns the normal inward inclination of all the others, but, as indicated in an

Fig. 53.



exaggerated manner in Fig. 53, they gave them an especial inclination. They also increased the diameter of these angle-columns, and, as has been elsewhere noted, narrowed the intercolumniation A B, knowing that these angles, which would almost always be seen diag-

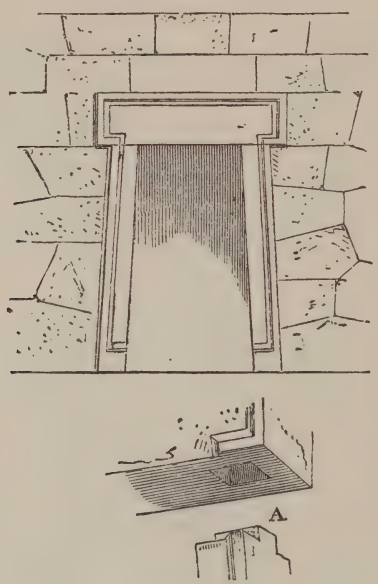
Fig. 54.



onally, would be detached against the sky or some luminous background, and that the light admitted thus around the angle-column

would seem to enlarge the voids at the expense of the solids. Thus, guided by a very delicate instinct of the eye, they anticipated a law of statics. In the same manner, when they pierced a wall with an aperture whose background would be dark, as in windows or doors seen from without, if the jambs were made vertical (Fig. 54), the opening would appear larger at the summit than at the base; so, to cancel this illusion, the Greek architects adopted the same expedient here and inclined their jambs inward (Fig. 55), thus not only satisfying another instinct, that the same width is not required at the upper part of a door as at the lower, but anticipating the statical law that the bearing of a lintel supporting a great weight over a void should be diminished as far as practicable.

Fig. 55.



The architects of the twelfth century, though adopting forms of architecture and systems of construction very different from those of the Greeks, were directed by similar instincts. They always diminished their façades towards the summit, not by inclinations of lines, which are inadmissible except where monostyles are employed, as in Greek angle-columns and jambs, but by a successive retreating of vertical lines as in the offsets of their buttresses which were built up with low courses of stone. In the primitive apertures of the Greeks (Fig. 55), the jambs were two long blocks of stone

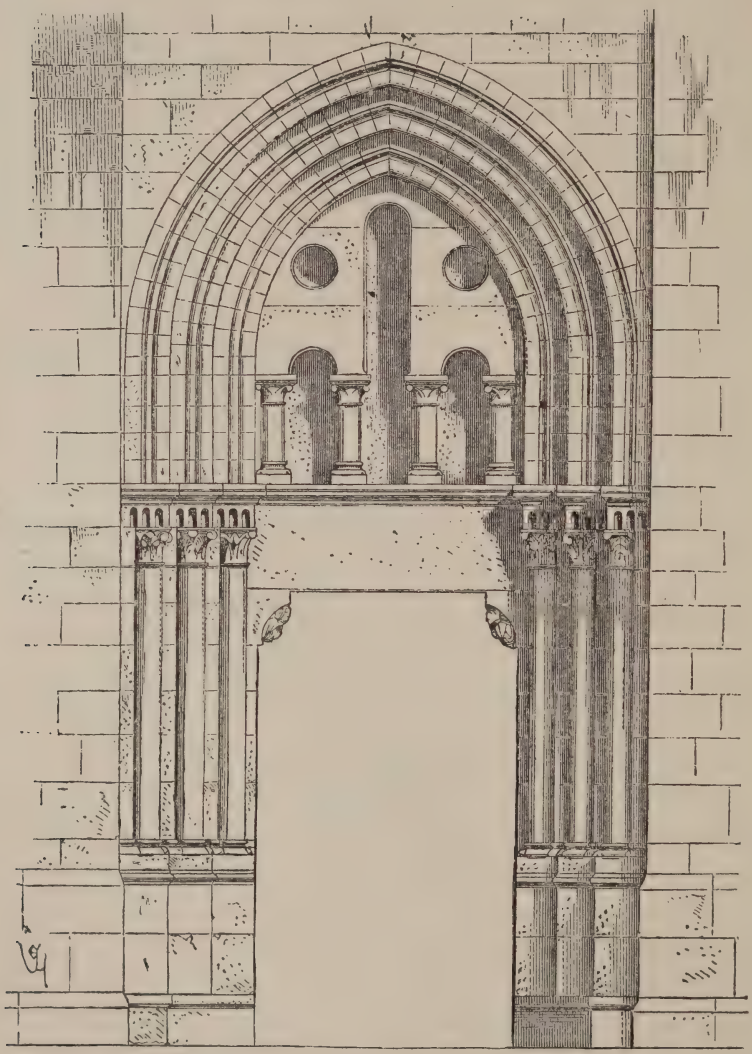
standing on end and slightly inclined towards each other, and the lintel laid across their summits was necessarily a single and thicker stone; the two upright pieces were provided each with a tenon on the upper bearing-surface (see A in Fig. 55) fitting into a corresponding mortise-hole on the under surface of the lintel, which was made longer than the upper diameter of the aperture, in order that the mortise-hole at each end might be sunk into the stone without weakening it at points where strength was most necessary; hence the *crossette*, the *ears*, of the lintel of the Greek aperture. The architects of the twelfth century made their jambs not of a single stone, but in many superimposed courses, the level lintels, however, of course, remaining a single block in all cases. Now, these architects, refraining from imitation of the Roman door with its architraves, which was but a vulgar and misunderstood tradition of the Greek door, reasoned like the Greeks, and, wishing to diminish the bearing of their lintels, they built up their jambs vertically and relieved the bearing of the lintel by means of corbels, projecting from the upper course, as indicated in Fig. 56;* and, to be still more certain that the lintel should not break under the heavy weight of masonry which they proposed to lay upon it, they built above it a discharging arch, leaving thus both jambs and lintel free, and relieved of all unnecessary weight. The Greek relieved his lintel by diminishing the aperture at its summit, and by corbelling inward the successive courses of masonry above, leaving only two or three stones to bear directly on it; the architect of the twelfth century relieved his lintel by diminishing its bearing with the aid of two corbels under it, and by building over it a discharging arch. The same instinct prompted and the same law followed in both cases, but with a total difference of principle in application and of form in result. Each architect followed the same inspiration of his delicate nature, and each arrived at results which, though opposed in form, were in the main identical.

We have seen with what care the Greeks managed effect, how thoroughly they comprehended what we call *the picturesque*, and how, by refinement of conception and delicacy of execution, they reached the very summit of art; we have seen what a feeling they had for lines, and how this feeling was expressed by a very subtle and very fine study of natural laws and of the instinctive desires

* Lateral door of the façade of the cathedral of Senlis; close of the twelfth century.

of the eye. These same qualities we find in the French school of the twelfth century, with less simplicity in means and less grandeur in results, but with somewhat of the immeasurable audacity of modern times.

Fig. 56.



The Greek architect, in designing, always sacrificed the apparent grace of his geometrical studies to what he foresaw would be their perspective effect when executed. He knew that the angles of his edifices, always seen obliquely and from accidental points of view, were the parts which required the most study, as those most affecting

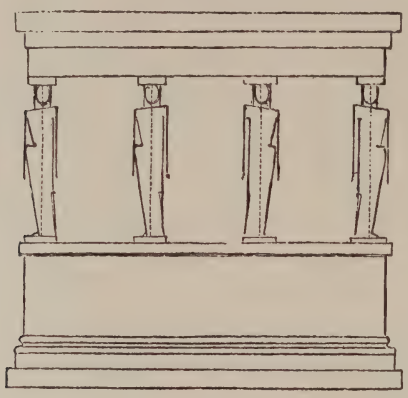
Fig. 57.

the outline and general exterior character of his composition. Thus, a geometrical elevation of the little Pandroseum, annexed to the Erectheum at Athens (Fig. 57), presents an enormous entablature which seems to crush the supporting caryatides, and the stylobate appears bare; but, if we examine this monument in execution, the supporting figures at once assume such an importance by reason of the firmness and purity of their sculpture, they bear the superincumbent weight with so much ease and majesty, that what we consider the disproportionate quantity of the entablature disappears, and all the parts fall into their places and take just their due share in the general harmony of the composition. The statuary is so treated that even columns would seem less capable of doing the duty which they perform with so much grace and dignity. Now, let us suppose that the architect of the Pandroseum had not been endowed with so perfect a knowledge of effect, and that he had carried the angles of his portico on two pilasters, using the caryatides only as intermediate points of support; he would certainly have been sound and irreproachable as regards construction in so doing, but he would have obtained a very commonplace profile instead of that bold but refined line which the angle caryatid makes against the sky; he would not have attracted the eye, and his monument would have left no trace upon the memory. An architect, under the dominion of those vulgar rules which are mistaken in modern times for classic tradition, would never have dared to present the angle caryatides, and, more especially, those on the returns of the portico, facing towards the front; he would have turned those on the angles so as to look outward diagonally, and would have posed those on the returns in such a manner that their faces would be towards the outside and their backs towards the inside of the portico. To lay an entablature on a statue in profile would be an enormity indeed! But, apart from the execution of this little structure (and the execution is admirable), the whole merit of the composition resides in the simple, poetical conception of six figures, moving forward, as it were, with the same intent, bearing a canopy upon their heads. There is a calmness in their attitude appropriate to the serious duty they are performing as supports, and a unity of movement, a living idea in the whole structure, which at once recommends itself to the imagination.

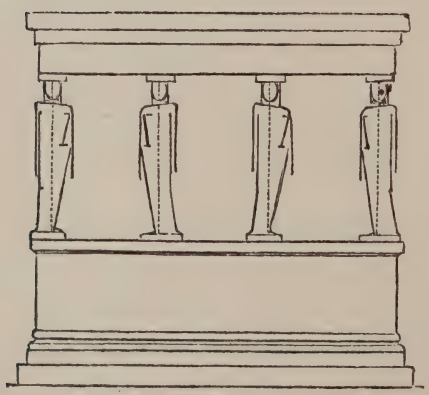
But it would be an error to suppose that the Greeks, in their architectural compositions, suffered themselves to be guided by their artis-

tic instincts alone; for we can always discover a profound reason in everything they did. Thus, in this portico of the Pandroseum, we observe that the four anterior figures are posed, the two on the left leaning on the right leg, and the two on the right leaning on the left leg. The statues, taken here as supporting members, fill exactly the function of the angle columns of the portico in Fig. 53, which refer all the pressures towards the centre of the edifice. But let us suppose that the architect and sculptor, employed in erecting this struc-

Fig. 58.



A



B

ture, had not been united by the same thought; that the sculptor had worked apart from the architect, as often happens to-day, and, instead of disposing the figures as indicated in Fig. 58, at A, that is

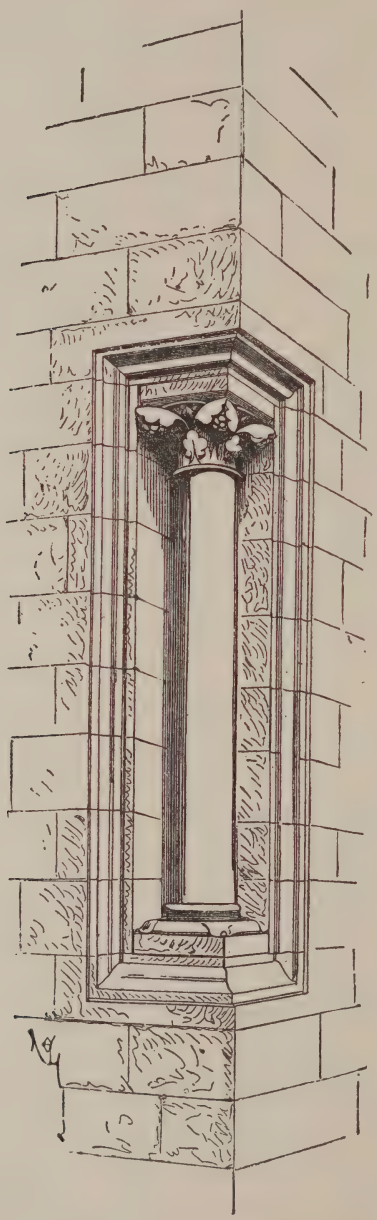
to say, *hipped* outward, he had arranged them indifferently or in an alternate order, as indicated in B, the entablature would no longer seem to be carried with ease, and the little edifice would appear ready to fall in pieces.

While the architects of the Renaissance and those of Louis XIV., although they pretended to draw all their inspiration from the antique, never suspected the existence of these great rules of art, established as they were on a well-reasoned sentiment of truth, we can find these rules habitually applied by the architects of the best mediæval epoch, although of course in their own manner. But neither these architects nor those of the Renaissance ever attained that repose and serenity which is shed over everything from the hands of the Greek.

I know not how the Greek architects would have treated the angles of very lofty structures, composed of several stories, to give them a happy outline; we have every reason to suppose that they would have taken hold of the problem with their characteristic sagacity and would have supplied us with examples full of instruction; but if we examine our great monuments of the French school, we shall find in the composition of their angles qualities analogous to those displayed by the Greek artists on a more limited field; we shall find that the mediæval motives were inspired by a natural instinct not less delicate and a habit of observation not less refined. It is easy to see that the mediæval architects were preoccupied with the necessity of *sustaining* their angles by bold and well-relieved compositions so composed as to force themselves upon the observation and memory of the beholder; but, in this emergency, as in all others, reason was in full understanding with sentiment. We must not forget, in the first place, that these architects possessed strong and hard stone for building, but that this stone could only be extracted from the quarry in comparatively thin layers; they had at their disposition neither Pentelic marble, nor the granite blocks which the Romans obtained from Corsica, the Alps, or the East. Necessity required from the mediæval architects large structures, and from the Greeks small structures; but necessity also required that the former structures should be built up in low courses of masonry, and the latter constructed with enormous blocks. These differences of conditions naturally had their influence on all the forms given to architecture, even in their vertical lines. The artist instinctively felt that a masonic wall of low courses of stone, whatever might be the firmness

of these courses and the thickness of the supporting members, would not present those sure and rigid lines which the eye requires in the

Fig. 59.



construction. His aim then was to obtain, especially for the angles, pure lines to define his general profiles more strictly. So, as indi-

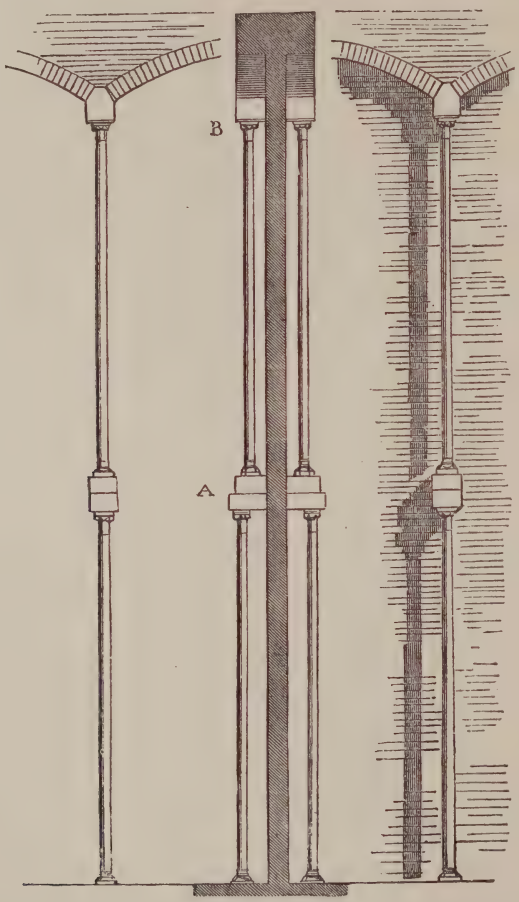
cated in Fig. 59, he inserted into this angle a monolithic column, so isolating it from the surrounding masonry as to add to the apparent strength of the angle. In very lofty edifices, composed, consequently, of a great many courses, this fashion of placing dressed stones on edge in the angles, thus obtaining rigid lines of support, had not only the advantage of satisfying a requirement of the eye, but actually stiffened the angles and relieved them from the task of apparently bearing more than their share of the superincumbent masonry by referring any settling which might take place to the middle of the wall-front; in this the mediæval architect reasoned like the Greeks, when they diminished the opening of their apertures at the summit and inclined their angle columns towards the interior.

Whether by an artistic instinct, whether his eye prompted him before his reason intervened, or his reason before his eye, the lay architect of mediæval France always employed and combined stones on end and stones in courses with remarkable address, both as regards motives of decoration and means of construction. He comprehended that if, by means of hard stones laid up on edge, he could stay a high wall built with low courses and consequently subject to settlings and to deviations from the plumb-line, he could give to his buildings a perfect stability, without the necessity of using enormous masses of material; that if he could substitute, in the mass of a wall, points of support instead of surfaces of support, he could obtain equal stability without the necessity of encumbering the ground with buttresses or thick walls. Let us suppose that we have to build an isolated wall, thirty feet high, of brick or thin courses of stone or rubble, and that we cannot make it more than a foot thick; it is evident that, to keep it strictly vertical, we must strengthen it with buttresses; but we are required to leave the space at the foot of the wall free from such projections and to decorate the wall; there is but one method left of giving stability to this structure, and this is (Fig. 60) by setting against the two faces and opposite to each other columns of some very compact material, like cast-iron, for instance, superposing these columns where necessary, retreating the upper ones a little, uniting them to the body of the wall by intermediate headers or bonds, as at A, and by charging their summit, B, with arches thrown from one to the other. It is certain that this structure, recommended by laws of equilibrium and statics, offers a suggestive motive for decoration.

This expedient for obtaining stability was adopted, but timidly,

in the architecture of the Lower Empire and Byzantium. But it is due to the western architects that it was finally erected into a system. Thus, in cathedral towers, like those of Laon or Senlis, we can see that the architects, with the idea of giving rigidity to these structures, which were very lofty compared to the area of their base, stiffened and at the same time decorated the angles with stones on end, by means of which all the settling of the wall was re-

Fig. 60.



ferred towards the centre of the wall-face. The architect of the basilica of Constantine (Fig. 46) did not evince this sound common-sense, when he placed his rigid point of support, his monolithic column of granite or marble, under the springing of his grand vault. This column would have been much better placed outside, against the end of the buttresses or transverse walls; for, if this structure had not been

an enormous, concrete, homogeneous mass, much stronger than necessary, if the vaults had admitted any settling or movement at all, the points of support under the springings of the vaults not being compressible but rigid, the movement would have tended to throw the whole structure outward, since it was more compressible in that direction.

Let us admire antiquity, but let us temper our admiration with discretion; let us not close our eyes to investigation and criticism, nor commit the error of allowing the superiority evinced in many respects in more modern times to pass without recognition. There is no monument better fitted to illustrate the immense differences which separate Roman art from that of the French lay school, than the façade of the cathedral of Paris. The problem being to erect a building which should surpass in size all others in the city, which should fill exactly the functions of a cathedral, and which, as such, should have both a civil and religious significance, and be, in short, a sort of political manifestation, it would be scarcely possible to imagine a composition more grand in general effect, better reasoned in construction, or more skilfully executed in detail. Every one knows the façade of Notre Dame of Paris; but few persons, probably, have ever realized how much science and artistic taste, how much painful study and elaborate care, how much perseverance and acquired experience, were needed to build up that colossal pile in the space of at most ten or fifteen years. But the work is not yet finished; the two towers should be terminated by two spires to complete and explain the carefully studied lines of the lower structure. Here, certainly, there is art, and very high art.

It is necessary to place before the eyes of the readers of these Discourses a general geometrical elevation of this façade, though no such drawing can afford any just idea of the effect produced by the monument itself; I must refer to photography to supply the unavoidable deficiencies of a geometrical drawing. I refer to this façade, because I have just spoken of how the angles of buildings are arranged with a view to their outline, how forms are modified according to the instinct of the eye, how stones in low courses and stones on end are simultaneously employed, not only to stiffen the construction, but to relieve the monotony of horizontal lines, and how construction and decoration should be intimately associated. Nowhere else can these various qualities be found in a combination more complete, more ho-

mogeneous, and better reasoned than in this façade. Observe, in the first place, that the architect evinced the most delicate artistic feeling and a capacity, rarely exhibited in a building of such very great dimensions, in so dividing his façade by great horizontal lines, as to obtain an effect of repose and dignity, without cutting it into layers; and in so treating these divisions that, although they present spaces unequal in size, richness, and character of detail, they nevertheless are in keeping with each other and make up a perfect unity. This is not an adventitious accumulation of architectural forms, capable of change, modification, or even suppression, without injury to the general design, such as we see in many Roman, Byzantine, and modern monuments. Each one of these divisions exists by a necessity of the whole composition; thus, in the massive basement, there are three great doors with their wide splays and sculptured arches. To unite the richness of these three doors, and to relieve the nakedness of the lines of the intervening buttresses, four canopies project from the latter, supported on little monostyle columns and covering four colossal statues, yet without any interruption to the constructional lines of these buttresses, whose outlines are recalled by the little columns which appear in the form of a luminous line on either side of each of these statues.

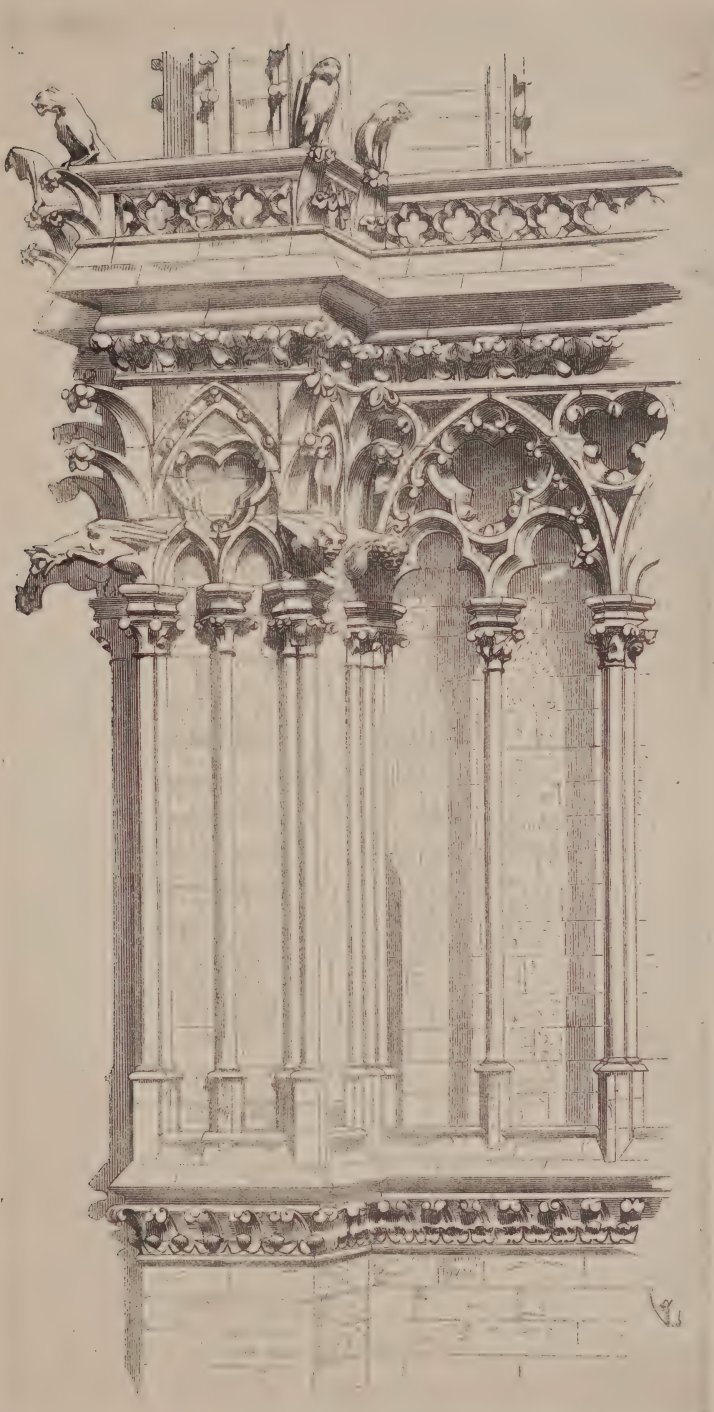
Above this basement, which, notwithstanding the profusion of sculpture lavished under its archways, maintains a grave and solid aspect, an open gallery or portico extends along the entire width of the façade, composed of a range of monostyle columns with large capitals supporting lintels cut in the form of open trefoil arches; in each intercolumniation is placed the colossal statue of a king. Meanwhile, the architect has contrived that the projection of his buttresses should still remain evident, without interrupting the horizontal lines of this open gallery, which forms a belt of niches across the front, of great firmness of composition and execution. The real dimensions of this belt, though dwarfed by the great scale of the whole façade, are made appreciable by the balustrade which surmounts it, recalling the dimensions of a man. Above this, the four buttresses are continued, gradually receding by successive stages of offsets, but between them the three bays of the front fall back far enough to leave a large terrace over the gallery of the kings, and to aid in giving to this gallery a great importance as a decorative line. In the central bay, beneath deep full-centred archivolts, is

pierced the great rose-window, which marks the central nave and the height of the interior vault. In the two lateral bays are double windows, giving light to the principal chambers of the towers, and brought to the general colossal scale of the edifice by being grouped in pairs under large discharging arches, the space between these arches and the windows (*spandrel*) being occupied in each group by a small blank rose-window, recalling by the treatment of its tracery the character of the central rose. This story, which is lower than the height of the basement, is crowned by a great cornice decorated with leaves, which returns around the buttresses, allowing them to disengage themselves boldly from the general mass of the wall. Then begins the construction of the two towers. It is at this point that the genius of the artist may be especially recognized. It is always a difficult task to disengage two towers, that is to say, two thick, solid masses, from a façade, presenting a general plain surface to the eye. The level battlement, between these two towers, leaves an unoccupied void over the centre of the façade, at a place where the eye demands, on the contrary, a solid and dominant point, for the pyramidal form in this position is one of the instinctive desires of the eye, because it is this which indicates perfect stability. After elevating these two towers thus suddenly from the almost square mass of construction below, the architect found it necessary to unite them above the main cornice, by a high open arcade or gallery, which, like the gallery below, passes entirely across the front, and is composed of great monostyle columns, supporting a rich open tracery, and crowned by a firm, projecting cornice and a balustrade, which serves to suggest the height of a man and to impress upon the mind of the beholder the real height of the arcade. By this artifice, the architect has relieved the abruptness of the transition between the solid and the void. The open gallery, in passing across the void between the two bell-towers, defines itself against the sky and against the gable of the nave roof, which rises behind, and may be seen between the columns of the arcade; this gallery thus serves to soften the harshness of the lines produced by the void; it is, as it were, a transition between the solid mass and the sky. In passing in front of the two towers, it remedies the difficulty, to which I have referred, of detaching two solid masses from one solid mass, by bewildering the eye in search of the exact point of demarcation. This gallery makes

of the façade of Notre Dame of Paris a homogeneous whole, instead of a façade surmounted by two separate towers. Forming an open portico between the buttresses and in front of the intermediate bays, this arcade passes around the faces of the buttresses in the form of a tracery laid against them or *engaged* in the wall. Here is another point where the architect has given evidence of a sure taste and a profound feeling for effect. The unity of the horizontal lines and the general characteristics of the gallery must be maintained across the front of each buttress, but the perpendicular lines and mass of the buttress must not be interrupted, nor must it be thinned or emaciated by any decoration, which, by cutting into it, shall destroy its mass. The architect had to bear in mind also that the angles of these buttresses must be kept pure at all hazards, as, in perspective, they were to define themselves in profile against the sky, yet that the balustrade above the gallery must be so managed as to serve as a continuous means of communication around the outside of each tower; while, at the same time, the projecting piers, which were to define the angles of the bell-tower, must be continuous with the buttresses and must not emerge from the horizontal line of the gallery like an afterthought, having no essential connection with the mass below. To fulfil all these conditions presented difficulties so serious that here evidently was that point of the façade, which, on account of its position and importance, required his especial study. Fig. 61 shows how the architect of Notre Dame resolved the difficulties of the problem.

The monostyle columns of the gallery, when engaged in the face of the buttress, are so treated as to *clean* the angles of the masonry, if I may be allowed the expression, gratefully relieving its horizontal lines of construction without concealing them; the open tracery, which is richly decorated in those parts of the gallery between the buttresses, becomes, when it is attached to the face of the buttress, compact and more severe, and participates in its structure; to prepare the eye for the projection of the cornice above, which is bold, in order to afford a passage around the tower by means of the balcony which crowns the cornice, the angle above each corner shaft blossoms out in a sort of vegetation; and, in fine, to break the harshness of the outline made by this projection of the balustrade from the upright lines of the angle-piers of the tower, and to obtain a feature of transition between the projections and retreats of this profile, animals have

Fig. 61.



been sculptured rearing themselves boldly upright on the angles of the balustrade.

If the façade of Notre Dame of Paris is very beautiful, even in its present unfinished state, it must be seen that everything is so well prepared in the substructure for the superstructure of the stone spires, that their absence is much to be regretted. As at present existing, there is, in the construction and appearance of the towers, a superabundant strength which is unjustifiable, since they bear no weight. How appropriate would be the position and character of the angle-piers of the towers and their great windows with their masculine archivolts, how elegant the whole present superstructures, which, in themselves, are too heavy for crowning members, if the two spires arose above them, and fulfilled their splendid promise! Plate XIV. indicates the completion of this façade, without pretending to present more than the general mass so far as the spires are concerned. In this we can recognize the excellent proportions of the great open gallery, which is evidently too high for the towers alone, and, by the emphasis of its perpendicular lines, serves as a preparation for the grand ascent of the spires; the two features were evidently studied together. The combination presented in this drawing also enables us to appreciate that the crowning of the tower-buttresses at their summits, a crowning apparently feeble and meaningless in the present unfinished condition of the structure, would in reality be peculiarly appropriate and elegant if the design were complete. We can see how gradually the composition passes from the horizontal to the pyramidal line. Cover up the two spires, and it will readily be perceived that everything in the present substructure is but a preparation for them. And if from the examination of the general design we pass to the study of the details, every builder will be amazed at the innumerable precautions which have been taken in the construction, and at the manner in which the prudence of the practical mechanic has been united to the boldness of the artist, full of resources and imagination. If we examine the profiles and the sculpture, we shall find indications everywhere of a thoroughly understood method, of principles strictly observed, of a perfect knowledge of effect, a purity of style unequalled in modern art, an execution at once delicate and bold, without exaggeration and impressed with all the beauty that serious study and enthusiastic love can confer.

Whence did these artists obtain such inspiration, if not from their own inherent sentiment? Where else could they have learned this art of producing great effects, who could have taught them these new forms, in what other school than their own hearts could they have acquired this brilliant and perfect comprehension of the management of great masses?

There is, moreover, expressed in the façade of Notre Dame of Paris a certain quality peculiar to the architects of France, when France had an architecture truly her own; this is variety in unity. Thus, at first sight, the grand portals seem symmetrical, but even here this artistic love of variety finds subtle expression; for the door on the left does not resemble that on the right.* The north tower (that on the left) is sensibly thicker than the south tower, and the tracery of the grand gallery on the left is more masculine and compact than that at the other end; from these facts we are justified in concluding that the two stone spires should present points of contrast in detail, while they should offer two harmonious and balanced masses in general effect. There is the same evidence here as in other contemporary structures built under a single impulse and without interruption, that the architect could not bring himself to repeat the same detail twice. In treating his two towers differently, the increase of labor he thus imposed on the workmen was grateful to them, when compared with the mechanical tediousness of producing two such colossal masses identical in every respect. Though such points of difference are often blamed as an offence against absolute symmetry, it cannot be denied that this desire for variety was spiritual, and gave to the workman a liberty of thought which prompted him to a perpetual study for improvement, to an emulation, I may say, which is in singular harmony with the western character. This individuality of thought and labor is exhibited perhaps even in a more marked degree in the fact that, although all the capitals of an order are similar in mass, they vary one from the other. Submitting himself to a general rule and keeping within specified limits, each sculptor has expressed his own individual inspiration.

In conception, Romanesque art was far from attaining the magis-

* The right door is mainly made up of fragments of sculpture belonging to the twelfth century. It would seem that, in rebuilding the façade of Notre Dame, the architect wished to preserve in the new structure the most beautiful remains of the old one. (See "Description de Notre-Dame," par MM. de Guilhermy and Viollet-le-Duc, 1856. Bance.

tral grandeur of Notre Dame of Paris; and, in details, it was still further removed from the perfection of form expressed by the lay artists. The lay school, in fact, may be regarded as a sort of reaction of modern ideas against traditions, a vigorous effort towards a new ideal of civilization, that is, perfect liberty without license.

But it may be said that the façade of the cathedral of Paris is a unique example in Europe. This may be true; but an abundance of examples proves nothing, in itself, regarding any question of art. Although there is but one Iliad, it must be acknowledged that, in the domains of art and poetry, there cannot be an entirely isolated and exceptional masterpiece; it must be a recapitulation, an expression of the prevalence of a certain order of ideas. It is one of the privileges of epochs favorable to the arts to be able to group harmoniously in a single body public sentiments and prevailing ideas. We do not know what the lay architects at the commencement of the thirteenth century would have produced, if they had had the leisure and means to build other monuments as important as the façade of Notre Dame, the only one of that period which, although even now incomplete, arose almost uninterrupted from a single impulse. At Laon, Senlis, and Amiens, we find contemporaneous architectural conceptions, which, although mutilated, modified, or incomplete, present in each case especial features of excellence.

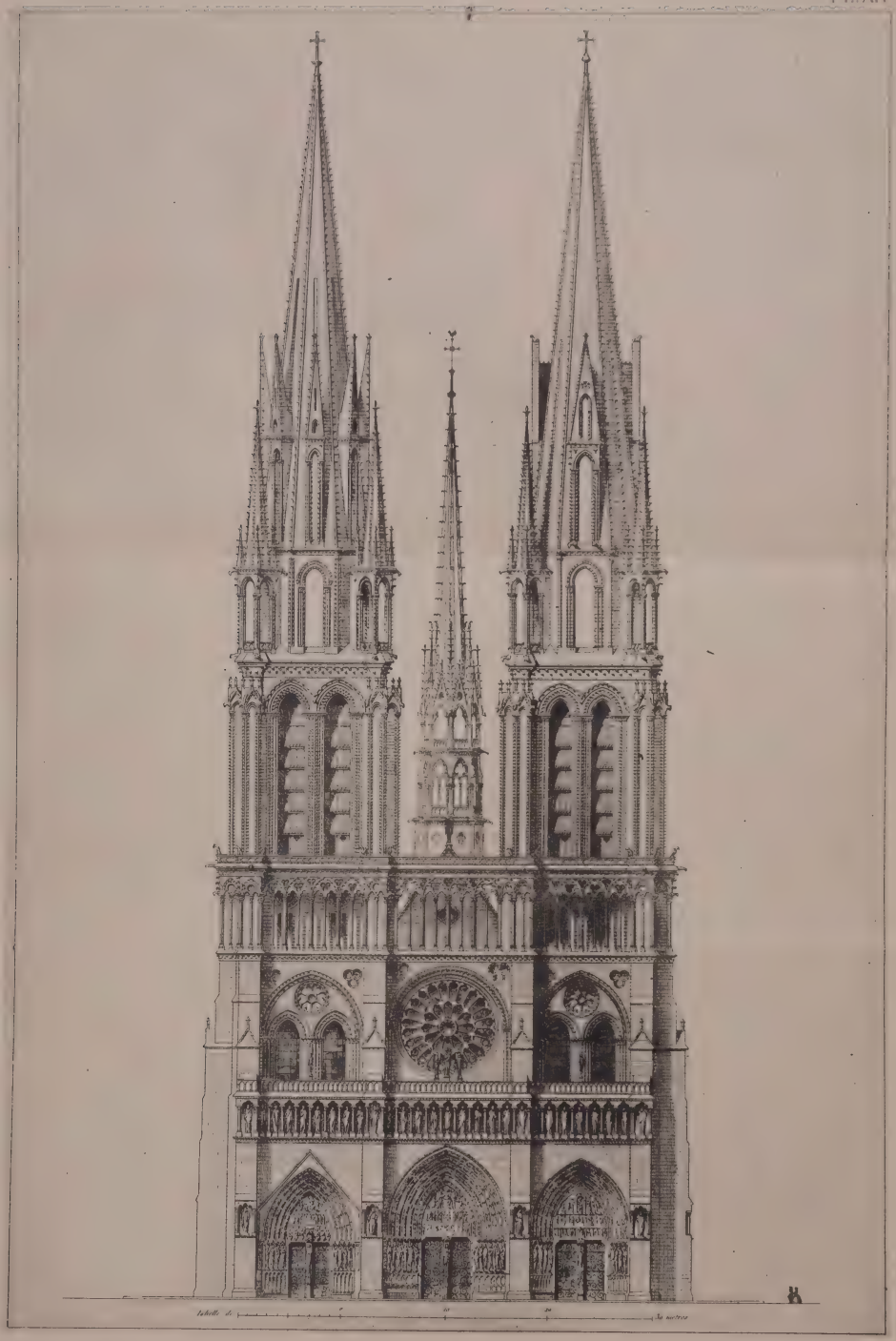
The catholicity of the arts is another and very essential characteristic of every favorable epoch; that is, their application equally to the cottage, to the palace, to the opulent metropolitan cathedral, and to the humble village church. Thus the most modest Greek construction exhales a perfume of art as well as the richest temple, and the little houses of Pompeii, built of rubble or brick, are as much works of art as the public monuments of that city. But an epoch which regards art as a mere matter of luxury, an appurtenance of the privileged classes, or an envelope proper only for certain public monuments, may be a well-administered epoch, but it does not possess the highest element of civilization, and perhaps one of the most essential qualities of public tranquillity. There are intellectual enjoyments as well as material enjoyments, and the former, like the latter, when they become exclusive and privileged, create envy and ill feeling. If but a few know how to read, the ignorant crowd, when it chances to get the upper hand, burns books with as much passion as it burns sumptuous châteaus, where all the material pleas-

ures of life are brought together. If everybody can read, books will accumulate and remain uninsulted upon the library shelves. In the same manner, to make of art a matter of luxury or to associate it only with wealth is dangerous alike for art and for the exclusive few who patronize it. It is important, therefore, to render art catholic, and to restore it to its proper influence over all things and its proper place everywhere; it is important that the minds of all, and of artists more especially, should be penetrated with the truth that art, in architecture, does not consist in the employment of precious marbles or in the accumulation of ornaments, but in distinction of form, in the most graceful and most honest way of doing practical things; for it costs no more in money, although it may in thought, to cut stones or to lay bricks according to judicious principles and with a proper regard for æsthetic proprieties, than to cut and lay them without duly considering the place they are to occupy in the building and the part they are to bear in its general effect. Now the art of the lay school in the thirteenth century was essentially democratic, it was everywhere and in everything; and the villager had as much right to be proud of his little church, or the country gentleman of his manor-house, as the citizen of his cathedral or the nobleman of his palace.

It is not enough for the modern architect to admire the works of the past, and merely to copy them is an avowal of impotence; but he must comprehend them and be so penetrated with their spirit as to be able to obtain from them deductions suited to the present time; he must see in form only the expression of an idea. A form which admits of no explanation, or which is a mere caprice, cannot be beautiful, and, in architecture, every form which is not inspired by the structure ought therefore to be rejected. Such was the creed and such the invariable practice of the French lay school, especially in its earlier developments, and it is in the most humble buildings that the application of this creed is most evident.

Let us select an example in one of those little rubble-built monuments of Burgundy, in which stone was employed with extreme economy; let us enter the village church of Montréale.* Here we find nothing superfluous; the architecture is the construction; the walls are of rubble, and the piers alone of cut stone: and yet we

* A little more than six miles from Avallon. The church of Montréale dates from the end of the twelfth century.

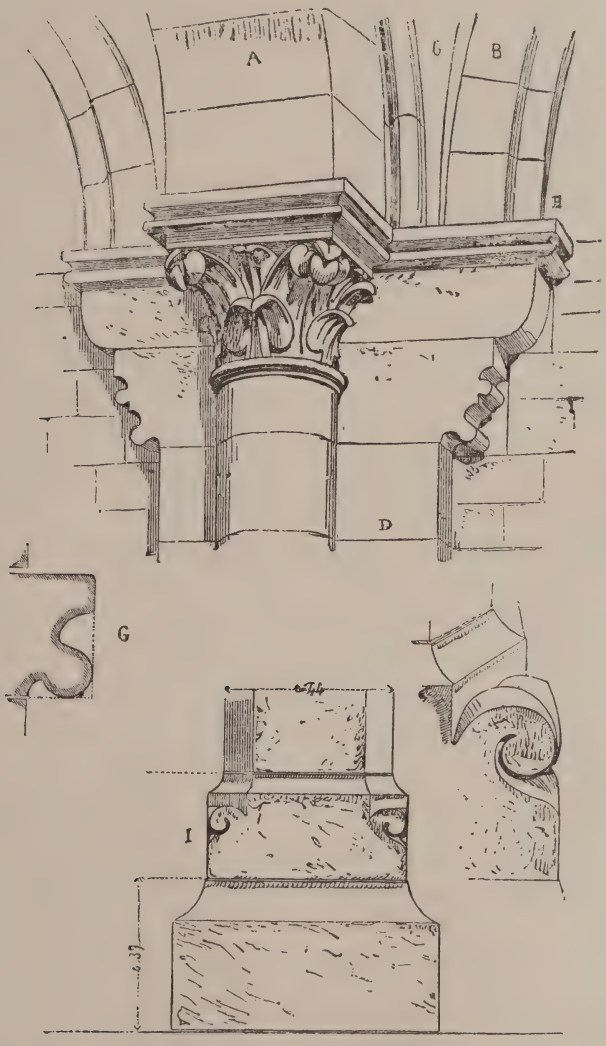


THE CATHEDRAL OF PARIS.

COMPLETION OF WEST FRONT.

behold, in this simple edifice, an art full of elegance, and mouldings, which, though rare, are of incomparable beauty and cut with a perfection equal to that of Greek profiles of the best epoch. The sculpture, which is used with extreme economy, is large in treatment, and in harmony with the simplicity of the whole structure. Let us examine in Fig. 62 one of the aisle piers, a column engaged in the wall

Fig. 62.



a third of its diameter, bearing the transverse arch A of the vault. In order to stop the longitudinal and diagonal ribs (B and C) of the vault, the architect has corbelled out the pilaster D in profile, and

crowned it with a continuation of the abacus of the capital of the column; he felt that if he had built up the pilaster D on a plumb-line dropped from the point E, he would have detracted from the value of his column and would have employed his stone uselessly. This arrangement, suggested thus by sentiment and supported by reason, supplied a motive for decoration. The profile G of the abacus is cut so as to produce strong horizontal lines of light and shade in the interior, where the light is necessarily diffuse, without detracting from the solidity of a member which sustains weight. Some of the other piers, as at H, are square, with angles chamfered so as not to interfere with circulation when the building is crowded; observe how judicious is the composition of the bases of these piers; how happily, from the square plinth, the intermediate plinth I conducts to the polygonal section of the shaft; how finely profiled, yet how solid, the decorated offsets (*claws*) K of the intermediate plinths preparing for the chamfers above; and how perfectly the form and the construction agree. When art can express itself with conditions so simple, it must indeed be perfect and full of instruction.

I should be led far beyond the proper limits of this work were I to undertake to enter into a careful analysis of all the details of the architecture of this period; but I think it essential to refer to a few, in order that we may comprehend how the architects of the lay school at the beginning of the thirteenth century proceeded when they undertook to adopt new forms.

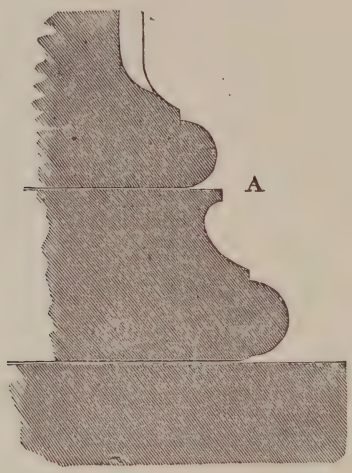
Let us consider, for example, the mouldings, which, in architecture, have a double importance, being affairs not only of necessity, but of sentiment, — of necessity, in that they should always have a practical duty to perform; of sentiment, because their form and character should be such as to indicate this duty. When a moulding or profile exactly fulfils its function and satisfies the eye with an outline perfectly appropriate to this function, it has style. And every architecture whose profiles answer to these conditions may be safely regarded as a refined, well-developed, and well-studied manifestation of art. The architecture which, on the contrary, covers its buildings with mouldings used simply as decorative features and not justified by reason either in character or position, wants one of the most essential qualities of style. Now, of all the architectures with which we are familiar, those of the Greek antique and of the lay school of the Middle Ages are the only ones whose mouldings

are equally satisfactory to reason and to sentiment. I am sorry to exclude Roman architecture, but it certainly manifested this quality only when it was but a servile imitation of Greek or Etruscan art. The Roman mouldings of the imperial epoch, after Trajan, are mere copies of Greek profiles, becoming daily further and further removed from their originals. As for the mouldings of the Italian or French Renaissance of the fifteenth and sixteenth centuries, they are but misunderstood traditions of the best antique arts, degenerate types, drawn at hazard by architects, and seen indifferently by the public. The Romans seemed never to attach any great importance to a thing which, for them, was certainly a mere matter of detail more or less happily applied, but quite without any especial significance. During the Romanesque epoch in France, on the other hand, we can see that the architect carefully studied this essential part of his art; he purified, as it were, the profiles transmitted by the architecture of a degraded epoch, but he never abandoned them completely; we can, in every instance, detect that the Roman types served always as points of departure, never entirely lost sight of; but towards the close of the twelfth century, the profiles, like the construction and the sculpture, underwent a complete transformation.

Let us turn to a few examples. We have observed that the Greeks placed bases under their Ionic, but not under their Doric shafts. Yet there are very ancient examples of the use of this member in Greece, as in the columns of the frontispiece of the treasury of Atreus at Mycene, where the bases bear a singular resemblance to those used by the Persians and Assyrians. In like manner, the bases of the Ionic order, which is more ancient than the Doric, are evidently Asiatic importations, while the Doric order is indigenous to Greece. But, in appropriating the Ionic, the Greeks, according to their invariable custom, transformed and purified it, without losing sight of its traditional members; they always refrained from placing at the base of a column any projecting foot or socket which would interfere with the passage of the portico, and so, while they preserved the Ionic base, they studiously rejected the square plinth; thus, the base of the Ionic order of the Erectheum is circular like the shaft. The bases of the grand portico have this profile (Fig. 63); those of the little portico, this (Fig. 64). Profiles so delicate and angles so sharp could only have been executed in marble, and it must be admitted either that the Greek boys were less destructive than ours,

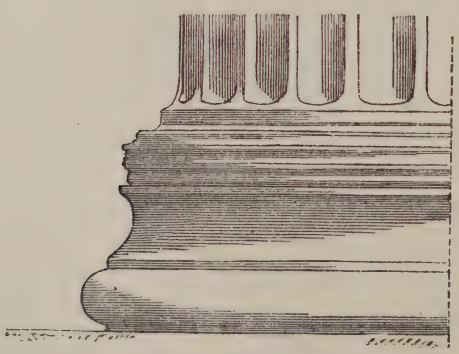
or else that they were not permitted to approach these porticos, where they would have been most likely to amuse themselves by knocking off the delicate edges. Although these profiles are undeniably much more beautiful than their Asiatic prototypes, I must say

Fig. 63.



that the fillet A of the base in Fig. 63 seems justifiable to me neither by reason nor sentiment. I can only see that the motive of the architect was to obtain a marked shadow under this fillet A, in order to completely detach the upper torus.

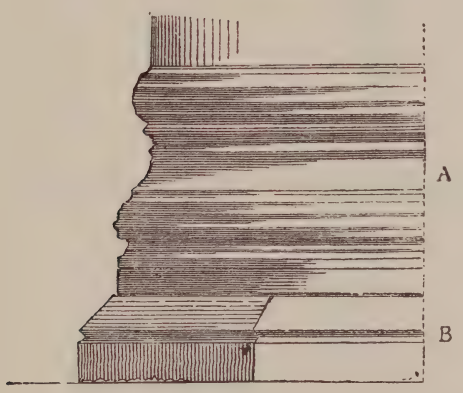
Fig. 64.



Let us pass by the Roman base of the time of the empire, as used in the Ionic and Corinthian orders, — a base which every one knows, and which rests upon a square plinth whose projecting corners are readily broken under the superincumbent weight, and are of no earthly

use except to trip up the unwary; let us pass on to France, where, even as early as the Romanesque epoch, there were bases bearing certain analogies to the Greek profiles, as in Fig. 65, which represents the base of a column of the choir in the church of St. Stephen at Nevers (eleventh century). This base A is circular in plan, and rests upon a plinth B, which is octagonal in plan. The Romanesque architect who designed the profile of this base probably was not acquainted with the Erectheum at Athens, though he had perhaps seen the Byzantine profiles which were derived from it; but it is clear that he instinctively rejected the Roman profiles which were abundant all about him, especially in abandoning the square plinth in favor of bases reposing directly on the pavement. But this example is perhaps one of those experiments of transition through which we cannot

Fig. 65.

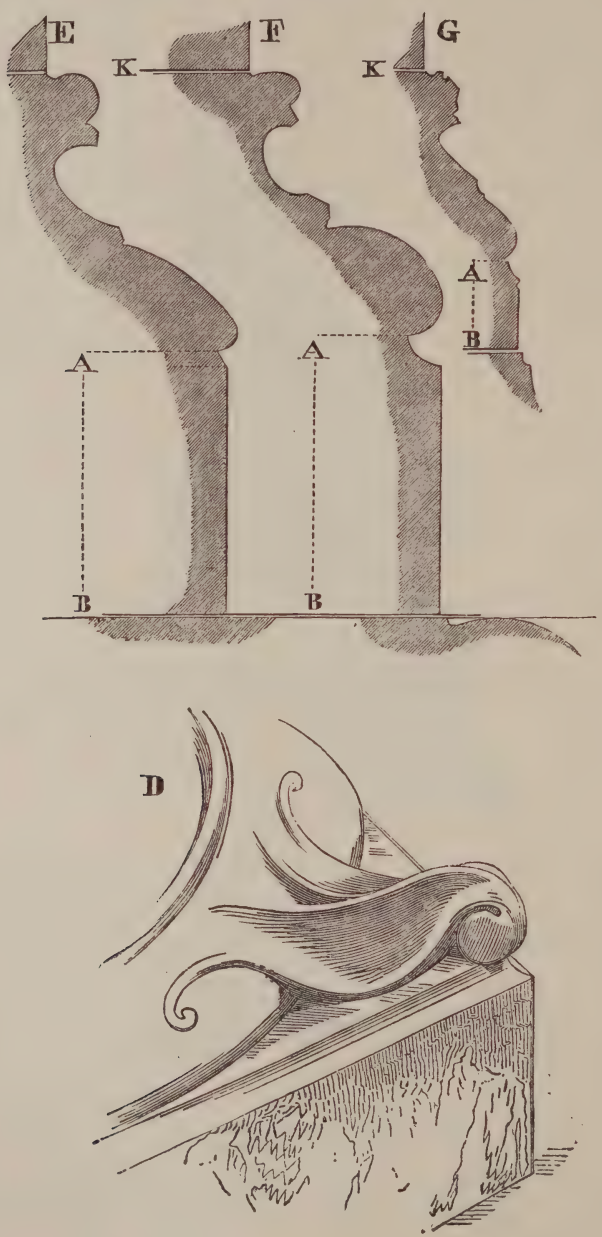


always trace a method. At the end of the twelfth century, however, we can see that a decided change took place in the outline of this member; the lower torus was flattened, so as more effectually to grasp the plinth, which had reappeared; but the angles of this plinth were either hewn off, or four leaf-like scrolls were projected from the lower torus to cover them. (See Fig. 66.)

Here are presented several profiles of bases belonging to this epoch; the profile E is from the church of Montréale (Yonne); the profile F is from the choir of the church of Vézelay; the profile G, from the town hall of St. Antonin (Tarn-et-Garonne). The beds or lower joints of the shafts being at K, the *congé* or outward sweep of the foot of the shaft, as in the Greek examples, is avoided, together with the danger of fracture, to which that member is liable when employed;

the upper torus is detached suddenly from the shaft, and the fillet beneath it faces upward that it may have its full effect, the whole base

Fig. 66.



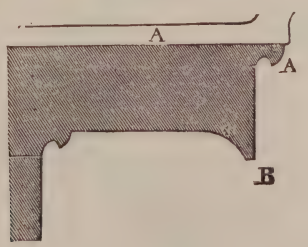
being below the level of the eye; the scotia, or hollow moulding, is boldly scooped, but full enough in its outline not to detract from the

solidity of the base, while it completely separates the two tori; the fillet beneath the scotia is also inclined to present its face to the eye, and the lower torus by its flat slope connects the whole base closely with the plinth, whose projecting corners are consolidated with the lower torus by the claws or appendices, represented in D, which affected different forms, usually taken from the vegetable kingdom. It is worth remarking that, in the example G, the upper torus is channelled horizontally like that of the Greek base; and I would add that all these bases are cut in a hard stone with a precision and purity which our most skilful workmen can hardly equal. Now in Roman architecture, whether an order is placed in a basement and rests directly on the ground, or whether it forms an upper gallery, to be looked up to from below, the base never changes; while, in all our mediæval edifices, this feature undergoes essential modifications to suit its position. Thus, if a column is very much elevated above

Fig. 67.

the level of the ground or pavement, the members of the base are so modified that the eye, looking from below, can see all its mouldings. (See Fig. 67.)

Fig. 68.



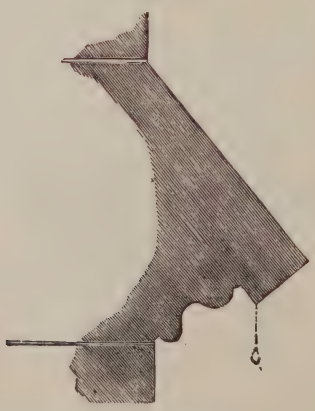
The Greek cornice is always appropriate to its destination, is always used as a crowning member, never as an intermediate string-course, and its upper surface A (Fig. 68) carries a gutter of metal,

under which are two drip mouldings, at A′ and at B, to prevent water from running down the face and soiling the stone with its washings. But what shall we think of a Roman cornice, which, with all its appendages, is degraded to the duty of merely separating two stories, a cornice whose upper surface (Fig. 69) receives the rain and snow, and whose profile is so managed that a drop of water, falling at A, is forced to run along all the surfaces between A and B, defil-

Fig. 69.

ing them with deposits of dust and washings of dirt, before finding at B a dripping-place where it can at last leave the stone? But the architects of the twelfth century, instead of inserting a cornice between two stories in this manner, used but a simple string-course or moulded band, whose profile was such (Fig. 70) as immediately to reject the rain.

Fig. 70.



If they wished to compose an archivolt, a moulding circulating over an arched opening, they took care to make a profile which

should best indicate the power of resistance with which the arch should be provided, without cutting into the stone so deep as really or apparently to weaken its mass.

Neither Greeks nor Romans ever appeared to have concerned themselves much about economy of material or labor in stone-cutting. Every stone, as it comes from the quarry, is practically a parallelopipedon; if, therefore, we wish this stone to have a projection anywhere on its face, the rest of the face must be cut away to leave the desired projection. Thus, in Fig. 71, if we wish to give a facing-stone (*ashlar*) a projecting profile A, we must cut away from the rest of its face the thickness B C. This waste of material and labor

Fig. 71.

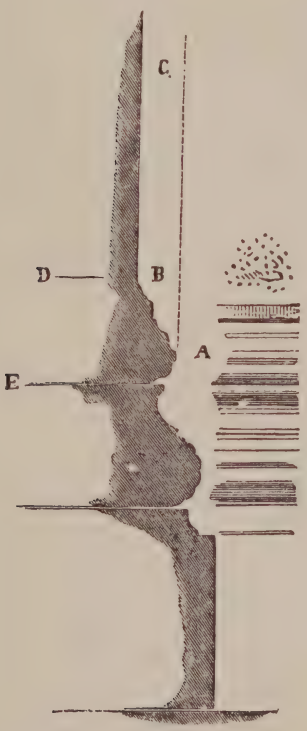


Fig. 72.

would be avoided by having the joint at D instead of E. The Greeks, in placing their joint at E, considered, not without reason, that every pier or column should have a firm footing upon the ground, and they so treated their base-mouldings, therefore, as to express this idea of stability, not only by the profiles, but by avoiding level joints between their vertical surfaces and their base projections; this was a consequence of the method of Greek structure,

derived from the simplest laws of statics. But when the primitive system of stability by post and lintel was replaced, in the twelfth century, by a system of stability obtained by the resultant of opposing forces, by equilibrium, it became useless and even dangerous to give to the base of the supporting members such a projection as should not be fitted to these new conditions of stability. Thus we can readily perceive that when a column had only to carry a weight acting vertically, it was reasonable to project the foot of the monolith to give it a firmer base, as in Fig. 72. But when these columns or piers had to support weights acting obliquely in contrary directions, and thus resolving themselves into a vertical pressure, the theory was never sufficiently certain in practice to obtain an absolute result; it was always necessary to allow for movements which are likely to take place in every equilibrious system seeking its centre of gravity; thus, if the mediæval architects had copied the Greek and Roman base, any inclination of the perpendicular line I K would have resulted in the fracture of the *congé* L. It was therefore at K′, and not at M, that they placed the lower joint or bed of their shafts, thus rendering the gentle sweep K L absurd. So at the end of the twelfth century the modifications represented in Fig. 66 were adopted.

The Romanesque school had already exhibited a marked tendency thus to design mouldings with a view to the necessities of construction; and in this respect it was in advance of the Roman architecture of the empire, which was very little affected by any such considerations. But that which the Romanesque architects evidently understood, the lay architects of the twelfth century established in practice and made a law. In composing their mouldings, therefore, they were governed, first, by considerations of position; second, by a scrupulous regard for the heights of the courses along which they proposed to carry their moulding, if horizontal; third, by a careful observation of the most economical method of cutting the stone in respect to its mass: that is, losing as little stone and as little labor as was consistent with the effect to be obtained. Thus, a projecting moulding was never cut on the stone which composed the ashlar facing of the wall. The Roman, on the contrary, as in Fig. 73, receiving the blocks as they were quarried, if he proposed to cut a string-course or level moulding, often traced the profile A on the upper part of the stone, leaving the joints at C C, thus losing the

mass included in B. But the architect of the twelfth century (see Fig. 74) occupied the whole height B B of a course of stone with his moulding A, regulating the height by the quantity or importance of the moulding, thus losing the smallest amount of labor and mate-

Fig. 73.

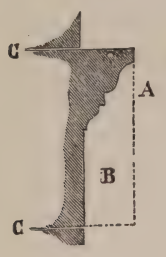
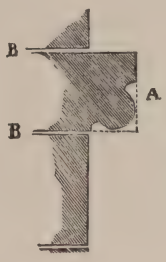


Fig. 74.



rial in obtaining his effect. This was an absolute rule, and admitted no exception, as may be readily ascertained by examining a few monuments of the era. It is easy to understand that this judicious employment of material is a quality to be seriously regarded.

When I beheld the basilica of the giants at Agrigentum, and saw that not only the engaged exterior columns, but the interior piers and even the great caryatides, were built up with low courses of stone having many vertical joints, and that the materials of this structure, in comparison with its colossal dimensions and Titanic character, were little better than rubble and far too small for the size of its features, I could not but think that the Greeks, considering it a paramount necessity to obtain forms which were conventionally held as beautiful among them, seemed, in this case, to concern themselves little about modifying those forms to suit the nature of the material they had to work with. I am aware that they covered this construction with stucco, in order to conceal the want of harmony between the form and the material; and, when I place myself at their point of view, I admire what they did, and refrain from blaming them. But when I see an edifice of the twelfth or thirteenth century, in which the architect has known how to obtain beautiful forms by the use of just this kind of material, modifying the former to suit the nature of the latter, my admiration is again aroused and my spirit entirely satisfied. I say to myself, If the Greeks had been aware of the principles which governed this architect, if they had possessed the same practical knowledge, it is probable, as they reasoned like him, they would have been led to do as he did; but taking their points

of departure from opposite principles, they have necessarily arrived at different results. I see, among the Greeks, excellent artists, who, in their buildings, sometimes regarded construction (which was very simple in their day and applicable only to the simplest monuments) as a matter of but little importance. But, among the mediæval architects, I see skilful constructors, forced to combine vast and complicated monuments, who yet knew how, by the simplest means, to create a perfect harmony between their forms and their structure.

The Greek wished to obtain form and obtained it, as beautiful as it was simple; his method of construction was also simple, but he made it subordinate to the paramount consideration of form; nothing could be more logical. The lay architect of the twelfth century, by the force of circumstances, by the modern spirit, by the new requirements of his time, was constrained to adopt a very delicate and very complicated structure, which he was careful not to conceal; on the contrary, he sought to explain it by the most natural forms; again, nothing could be more logical. I agree that the age of Pericles is of greater value to the world than that of Philip Augustus, and that one would be justified in preferring to be a contemporary of Ictinus rather than of Pierre de Corbie; but it is a waste of time to indulge in such regrets or desires; we cannot shut our eyes to the course of the centuries and all that they have brought with them of new ideas, new requirements, experiments, and discoveries. Strange though it may seem, therefore, to hear it said that, to advance, we must look back twenty centuries, yet, to advance rationally and consistently, we must know the path which has already been trodden, and all the experience which has accumulated on the road. Now, of this experience, that included in the twelfth and thirteenth centuries is the most instructive in the history of art, because it was a part and an expression of a prodigious intellectual movement towards modern ideas, a movement provoked by the lay spirit acting against tradition, seeking new means and applying new forms. I would not be understood to say that this school discovered the last and most complete expression of our art. Certainly not; but it is a storehouse of beautiful ideas, and we cannot progress without resorting to it for information. But some may say, We admit that the epoch of which you speak was powerful, and made great progress in the arts; yet did not subsequent centuries continue to progress, and would you have no regard to what has been done since? would you, who say we

should not retrograde, wipe out the last six centuries and refer us to an era which has long passed by? To this I would reply that it amounts to nearly the same thing whether we go back six or twenty centuries; it is not a matter of time, but of the applicability of the experience we are trying to gather to our own progress in art. Those who, in the sixteenth century, thought it necessary to go back to the arts of classic antiquity, instead of developing those of their mediæval predecessors, had their reasons, which I shall presently endeavor to explain; but for us to imitate them in this respect, and to perpetuate this return to ancient art, is like compelling a young and vigorous body to live with corpses, it is to doom it to a living death. We admire the tombs, but we do not live in them. It is one thing to read the works of a dead man, another to be enveloped in his shroud. The question is not whether we shall retrograde to the time of Pericles, of Augustus, or of St. Louis, but whether we shall cast our eyes over the past and examine the epochs when art was a living expression of civilization, and evinced an ability to develop new principles; whether we are to avail ourselves of the treasures of art which have accumulated in history, neglecting no part of them in our investigations, to consider all the principles developed and to fix an artistic, not an antiquarian eye upon those which are true, applicable, and vivifying for all time.

The Greeks were born under a beautiful sky, free from the fogs and mists which obscure our atmosphere; they established themselves in the midst of a country divided by gulfs and by mountains, and rich in materials of marvellous beauty. They adopted that architecture which was best suited to these conditions, and they reached an intellectual development only possible in a little country, and in the midst of societies which were but associations of merchants and men of wit; they perfected the arts as only a nation of intelligent amateurs could do. This result must forever remain the envy and regret of succeeding generations as an unattainable excellence. But, I would ask, what analogies are there between these select societies and our vast Christian nationalities? As for Greek unity, it was a dream never destined to be realized in antiquity. The little societies or municipalities of Greece were only united when compelled by a common danger threatening their existence and their liberty. The danger passed, they resumed their mutual quarrels, and these quarrels disturbed the soil of Greece, even

while its civilization was advancing towards perfection. In the West, on the contrary (and when I speak of the West I refer especially to France), the dominating idea was national unity; and to the attainment of this end art was one of the most powerful agents; the character of this art, therefore, deserves to be studied, if it were only for this reason, and if it had no practical application to present uses. That which is admirable in the Roman architecture of the empire is the manifestation it presents of a powerful organization; but in this manifestation there were often exhibited a disdain for the forms of art and an evident disregard of the individuality and liberty of the artist. The Greeks, on the contrary, in their best times, always submitted art to a careful criticism for its own sake; if their buildings were ever intended, like those of the Romans, to be political or religious manifestations, their art did not stop with the bare accomplishment of this purpose, in giving majesty and grandeur to the masses, but embraced the minutest details; and the artist was not considered a mere trifler for devoting time, study, and reason even to a matter so unimportant, apparently, as the cutting of a moulding. We have said that the Romans were skilful administrators, men of large ideas, imposing no creeds, and concerning themselves little about art for its own sake. I cannot but think that there was a certain grandeur in this evident disdain of the Roman for that which belonged to the artist, that which attached the artist to his art as to a religion; for, if he disdained art, he at least did not persecute it, nor did he modify it with the prejudice or caprice of an amateur: he did not enter into the question of creeds of any kind, he exacted nothing but respect for his law and submission to his administrative and political system; little would he sympathize with your concern about adopting this or that form, provided you kept to the practical conditions he imposed upon you; such matters were your affairs, not his. But art is like religion also in this, that mere toleration is not enough for it; it requires, lives by sympathy; and when it exists among people who content themselves with not being hostile to it, who excite it neither by adhesion nor criticism, it must necessarily decline: this explains why art may decline even under a powerful and flourishing empire like that of the Romans up to the time of Constantine. But when a government takes enough interest in art to oppose it or seeks to constrain or even to direct it, it does not become enfeebled if it is in the hands of true artists; for opposi-

tion to the arts, as to religious creeds, kindles and revives them, if their disciples are in earnest. In France, as in Greece, to attempt to ostracize an artist has ever been to increase his influence over the arts of his time.

If the Romans, in the first century of our era, could establish an official art, no power could effect such a result in France, because of a fortunate tendency to investigation and criticism in art among Frenchmen, and especially among that class of artisans which architects are obliged to use. Architecture has only been brilliant in France when it has really belonged to artists, and when they have been able to develop it without restraint. To every sensible mind, which is aware of the material difficulties which surround the execution of the simplest architectural work, whether on account of the nature of the programme imposed, the material to be employed, the resources to be used, the space available, etc.; whether by reason of the conditions of art, proportion, or harmony to be satisfied; the multiplicity of details involved even in the simplest construction; the thorough knowledge required of the general effects to be obtained by the reunion of materials, cut, fabricated, moulded, forged, or prepared apart in the studio of the sculptor, — to every sensible mind, I say, aware of all these practical difficulties, it is very evident that, if we would have an architecture, the architect must be allowed to resolve these difficulties in his own way, without the additional embarrassment of a direction vague and tyrannical or an interference capricious and exacting, to which he must submit, perhaps, but with natural repugnance and to the serious detriment of the work in hand. But let it be remembered that the architect, to establish any just claim to the independence essential to the full and effectual exercise of his art, must be so familiar with the practical means of execution as never to be embarrassed by them. Thus, in studying the architecture of the ancients, especially that of Greece, and the French architecture of the best mediæval epochs, we can easily see that the architects were complete masters of all the mechanical and constructive methods then known; and that, when a new problem was presented, involving new combinations, their professional resources were such that they could meet it by a new application of the immutable principles of their art, without going astray. The Greeks had brought their means of execution to such perfection, they were so sure of their practical knowledge, such absolute masters of all their exigencies of construction, that

their imagination, or, if you prefer it, their genius, was never fettered by material necessities; their conception of a work of art was never weakened by doubts as to how it should be executed: we must bear in mind, however, that their mechanical methods were very simple. The lay masters of the Middle Ages, on the contrary, had been led to adopt the most complicated construction, yet without injury to the purity of their artistic conceptions; and they preserved this liberty of thought and design, because, however complicated their construction, this construction was so thoroughly understood and perfectly reasoned as to be pliable to every possible emergency of design and, properly speaking, in itself to constitute architecture. To conceive and to execute were one and the same thing in this school. But in this nineteenth century we do not proceed in this manner; it is not rare to meet persons, considered competent judges, or even artists, who believe that a project conceived by an architect can, without losing any of its merit, be put into execution by outside subalterns without any direct supervision of the architect. Now a work of architecture, like every other work of art, is the most intimate association and agreement between the conception of it and the manner and means of executing it; and to suppose that an architect can make a design, which another can execute without his superintendence, is the same as admitting that a musician may be two men, one who composes and one who arranges the score for the orchestra. The skilful architect, in designing, always has in view the materials he is to employ, their forms and dimensions; he must appreciate their qualities and nature, and dispose of them accordingly; he builds up in one day in his mind what it will take years to erect actually; and the sheet of paper before him already becomes, as it were, a vast constructor's yard, where masons, stone-cutters, carpenters, iron-workers, slaters, joiners, glaziers, sculptors, and painters are plying their vocations to produce an harmonious whole, just as the musician, in composing an opera, hears the various instruments of the orchestra, the choruses, and the voices of the singers. But in order that the public may recognize, in the score of the musician as in the monument of the architect, an original work of art, bearing the impress of personal talent, the musician must have himself written and arranged all parts of his composition, as the architect must have himself apportioned among all his workmen the various details which compose his monument; and it is as essential that the musi-

cian himself should direct the rehearsals, so that he may modify his work where experiment may render it necessary, as that the architect should superintend his mechanics and arrange, according to the spirit of his design, the innumerable unforeseen emergencies of execution as they daily arise under the hands of the workmen.

It should always be remembered as a fact of the utmost importance that, of all the works of man, art is that which suffers most from the least imperfection; and, to attain anything like perfection in art, two conditions are absolutely necessary: first, a man of genius or, in his absence, a man of talent; then, to him, perfect liberty to develop this genius or talent, and to use all the natural and acquired resources of his mind. In the most glorious epochs of art the necessity of these conditions was never questioned.

EIGHTH DISCOURSE.

ON THE CAUSES OF THE DECLINE OF ARCHITECTURE.—ON SOME OF THE PRINCIPLES OF ARCHITECTURAL COMPOSITION.—ON THE RENAISSANCE IN THE WEST AND ESPECIALLY IN FRANCE.

AS architecture is almost as much a science as an art, reason and calculation entering largely into its conceptions, it follows that architectural composition is not only a labor of imagination, but is subject to certain fixed rules which must be methodically applied, and to certain practical requirements which are exact and limited.* In this respect, the architect is unlike the painter or the sculptor, with whom execution follows immediately upon conception, without the intervention of any extraneous considerations. Thus, the invention of the architect must be chastened on the one hand by the absolute requirements of his problem, including fixed conditions of expense and site, and, on the other, by the nature of his materials and the manner of using them. All these elements must have their due influence over his design. It would seem, therefore, that to habituate the architectural student to composition, the programme given him to develop should always be accompanied by a statement of the practical obligations to which he would be obliged to submit in the actual execution of the work.

* If we turn to the word COMPOSITION, in the "Dictionnaire d'Architecture," of M. Quatremère de Quincy, we shall see that, though the distinguished author does not develop his definition to the extent we might desire, he presents this remarkable passage: "Nothing is more important for the architect, when he composes, than to keep constantly in view the practical means by which his inventions are to be realized. The necessity of submitting composition to the means of execution should exercise a controlling influence over architectural education from its very beginning. The study of composition should not be confined to imagining upon paper plans which are simply agreeable by the variety or symmetry of their dispositions, and elevations which, by their novelty or by the arrangement of masses and mouldings, shall be picturesque. For it often happens that those effects, of which imagination is prodigal in design, either cannot be executed, or, to be executed, would require prodigious expenditure."

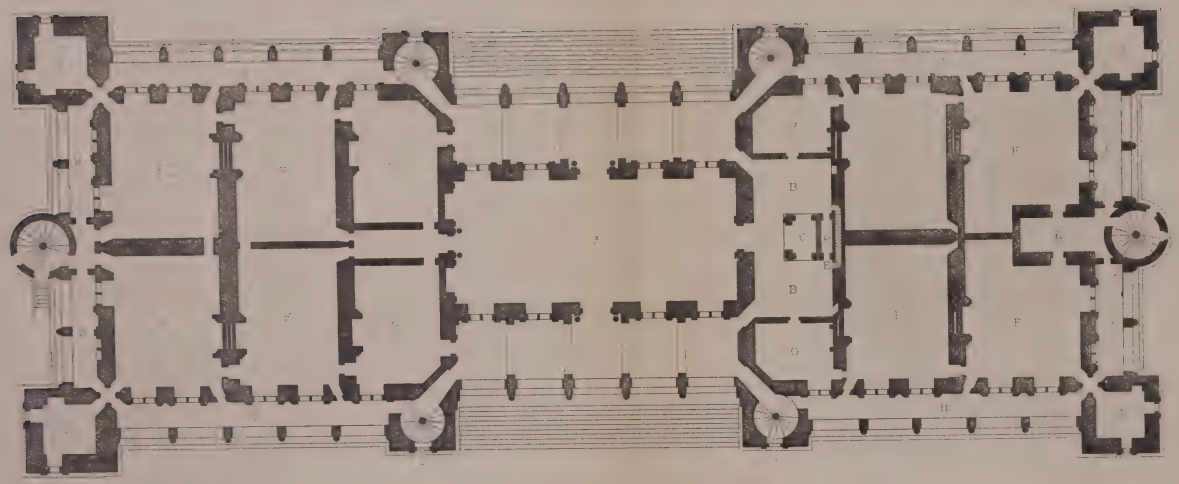
But architects are not so educated in France. They go through a course of instruction under the protection of the state; but this course is practically limited to the composition of designs on programmes of requirements, generally of the vaguest character, and often far removed from the habits of modern times; these programmes are limited by none of those conditions regarding expense, site, materials, and local habits of building, which exercise so tyrannical a sway over the actual practice of architecture. This course of instruction presents to the pupils only certain forms or styles, more or less well interpreted, of ancient art, to the exclusion of all others; it is jealous of any bold innovation, based upon the employment of modern means; it turns in this same circle for a fixed number of years; and finally, as a supreme recompense for an exact submission to these doctrines, it sends the young architects to Rome or Athens, that they may there for the hundredth time restore the Coliseum or the Parthenon. The practical result of this method of education is the common complaint that architects involve those persons or committees who employ them in expenses far beyond their intentions; that architects do not readily conform to the material exigencies of the work in hand; that they are preoccupied with the idea of erecting a building which shall rather do themselves honor than fulfil all the conditions imposed by the necessities and habits of the moment; and, finally, that they continually copy antique styles rather than, by submitting their imagination to modern conditions, seek an architecture which can be appreciated and understood in modern times. Thus we reap what we have sown, for we cannot complain of architects, since we have made them what they are.

Now, if this is a good method of instruction, we have no reason to regret the result; but if the result is really unsatisfactory, let us modify the method. It is true that, outside of these strict limits of the Imperial School of Fine Arts, there is perfect liberty; but, for reasons unnecessary to enumerate here, very few know how to use this liberty, which thus naturally degenerates into license and eccentricity. And so, between academical oligarchy on the one hand, and the anarchy resulting from the absence of all method on the other, we look around us in vain for that object of daily desire, a type of art modelled on our own epoch. It is a matter of astonishment that, in the midst of such a deplorable state of affairs, architecture manages to hold so respectable a place in France; and this only

proves that, as a nation, the French have a natural fitness for the study and practice of this art, and that, if they had a true and liberal system of education, instead of a mere initiation or a protectorate such as the Roman patrician exercised towards his client, their architecture might become indeed brilliant and perfect. Art divided among jealous and exclusive schools, holding to formulas and not principles, abandoning the large and generous freedom of reason, or, under pretext of dignity, shutting itself up in an utter dumbness, exacting from its disciples only a boundless submission to doctrine or to the shadow of doctrine, — this is a feature of decline. It is in such epochs that architects seek merely the triumph or predominance of their especial sect, instead of the great and true interests of art, which can only live and progress by constant movement and free discussion, by the refreshment obtained by the introduction of new elements, and, in short, by liberty subordinated to reason.

With the exception perhaps of the thirteenth century and the reign of Louis XIV., there never has been an epoch in France so distinguished for activity in building as the present. Yet I but echo the common talk when I say that none of the new buildings which fill our cities appear, in design at least, to repose either upon the principles of the great epochs of art, from which they profess to be imitated, or upon new principles which have arisen since.* Built at great cost, profuse and contradictory in their use of material, they are without the harmony of truth, and have nothing in them to indicate the necessities or natural tastes of a civilization; they abound in dim reminiscences of Greek or Roman architecture, — Roman especially, — and of the Italian or French Renaissance of the sixteenth and seventeenth centuries; but not even the perfection of the execution nor the beauty of the materials employed can make us overlook the want of ideas and the absence of pliability, unity, and character: qualities which hitherto have belonged to the arts of all epochs, how-

* It would be unjust, however, not to admit that, among these new buildings, there are some which, in point of art, are remarkable works. I would cite, for example, the central markets of Paris, which are harmonious in construction and design, and admirably adapted to the purposes for which they were built. If all our monuments were built with the same absolute respect for practical requirements and the habits of the people, and indicated their construction as frankly, they would not only have a character appropriate to our epoch, but, as works of art, would be beautiful and comprehensible. Wherever there is this intelligent submission to the necessities of a programme and to the material employed, there must result, in my opinion, a very beautiful edifice. Perhaps, in confining ourselves to these conditions, and never thinking of making a *work of art*, we would find the shortest road to those monumental expressions of our civilization which are works of art indeed.



CHÂTEAU DE BOULOGNE, DIT MADRID

THE CHÂTEAU OF BOULOGNE, CALLED MADRID.

PLAN OF FIRST FLOOR.

ever low they may have been classed in history. These deficiencies are sufficiently emphatic to strike even those who are completely ignorant of the theory and practice of art.

But architecture has not fallen so low that we cannot hope to see it rise again. The evil is not without remedy. We are not hopelessly reduced to the necessity of copying the Romans very badly, the Greeks very weakly, (for who understands the Greek architecture?) the Middle Ages, the Renaissance, the style of Louis XIV., and even the expressionless monuments of the close of the last century, to return again to the Romans, for the want of another model, and recommence the profitless cycle of imitations. For, above and outside of these various forms of the same art, there are certain immutable principles so copious as to be the fountain of styles, so elastic that we can apply them to new requirements as they arise, and thus create new combinations, new forms, new lines, suited to the age of progress in which we live. And these principles are no impenetrable mysteries, accessible only to the elect; they are catholic and available to all.

It is high time to look into these principles, and to make use of these elements of new life which are still at our doors; we must turn aside from the petty interests of schools, and concern ourselves only with the great interests of an art which, when these interests have been observed, has ever proved itself the most apparent expression, the plainest record, of the characteristic civilization of races and nations. We must investigate fearlessly, and examine into the philosophy of all the developments of art without regard to the susceptibilities, however respectable, the prejudices, however venerable, with which we may come in contact in our course of examination and experiment.

Above all, let us guard against contempt of public opinion; it would be wise rather, as a last resort, to consider public opinion as sovereign and final: for, after all, the monuments which we build are for the public, and it is the public which demands and pays for them. I admit that public opinion should be enlightened, although, even now, it does not go so far astray as we are prone to think; but it is evident, on the other hand, that, so long as we sedulously conceal from the profane the principles of art, and make of architecture a sort of freemasonry, a language incomprehensible for the multitude, we may obtain from the multitude the blind respect

which flatters or the indifference which isolates us, but not the sympathy which encourages or the appreciation which makes us earnest to deserve. Since the last century, architecture has been a mystery, whose rites (if any) have been veiled from the public; from this sanctuary have issued monuments whose sense or utility not one person out of ten comprehends, but which are accepted because the chiefs of the doctrine have declared them correct and conformed to rules, without ever undertaking to explain these rules, and for a very good reason. If the people, weary of these architectural sphinxes which are built up before them with their money, ask for an explanation, they are told frankly that they cannot expect to understand such things; that these buildings are erected, not according to common-sense, but according to ancient rules; that if the public finds them neither beautiful nor commodious, the fault is with the public, and that the guardians of the dogma, who are alone competent to judge, are satisfied, and this should suffice. Strange that, in an age like ours, when every morning new ideas come to light, and everything is discussed, even to the foundations of society, one thing alone, it would seem, remains immovable, the inexplicable dogma of architecture, guarded by a mysterious Areopagus! In vain do the voices of the profane from without call for a new architecture, — an architecture for our time and for us, an architecture which can be understood, an architecture conformed to our civic customs. The Areopagus, of course, deigns no reply to such indiscreet clamors; but closes its gates, and, the louder the noise of the multitude, the blinder the submission it exacts from its neophytes. What then must be done? where is the remedy? The power, or rather the government, which is not artistic, and which has something else to do besides meddling with discussions on art, prefers to transfer its responsibility to the guardians of doctrines which they themselves have declared the only sound ones, and thus of course everything remains for the best in the best of all possible worlds. "Besides," says government, "where is the touchstone? The public is not satisfied, you say; there may be a few grumblers, who protest in this way, or perhaps some journal, whose friends have nothing to build; but where do you find this complaining public? As for us, we have heard nothing but praises about these buildings. Are there not always envious people about? France is an admirable country, the city of Paris is worthy to be its capital; nowhere will you find

a government more enlightened and more loyal to the true interests of the nation; the Academy of Fine Arts includes the cream of the architects, who have chosen each other, and consequently it is the most liberal of all the institutions in this country of enlightenment and the arts. What reason, then, has the public to complain?" Of course, to this there is nothing to reply.

But the manager of a theatre, on the other hand, cannot afford to disregard public opinion, because with him it is a question of receipts; and if the pit hisses the new comedy it is withdrawn, although it may have received the applause of the most select committee of critics. A bad picture, although surrounded by the highest patronage, when exhibited, remains a bad picture, and the painter has to keep it for himself. A book, however well puffed, if it wearies its readers, remains on the shelves of the publisher. But if a house is built, and found to be in bad taste, what is to be done? It is rather costly to tear it down. Our only resource is not to look at it, and try to forget it.

In the domain of letters, painting, and sculpture, the appeal to the public is real. There are no middle-men between the work of the artist and the public; therefore, in these, monopoly or ostracism is impossible. The French academies and the schools of moral science, of painting and sculpture, could not be exclusive if they would; for public opinion, whose criticism of literary, historical, or philosophical works, or concerning sculpture and painting, is respectable and respected, causes the most venerable academic doors to open, and give entrance to the authors and artists whom it sanctifies with approval. We have lately seen some remarkable examples of this. But with architecture it is quite otherwise. As the architect cannot build a monument in his cabinet, the direct appeal to the judgment of the public is denied him. If he is so unfortunate as not to agree with the opinions of the academic body, however happily arranged his plans and however profound and serious his studies, they are condemned as soon as his building is erected; as his design has not been made in the atmosphere of the *Villa Medici*, he can furnish no recognized proofs of his merit, and his path is crossed by adversaries often sufficiently powerful to oppose an effective veto to his success and his fame. "He who is not with us is against us!" This has ever been the supreme maxim of every organization outside of the control of public opinion. "The schools are intolerant from convic-

tion," wrote lately one of our brethren. But a body recruiting itself in its own circle, responsible to no one but itself for its instruction, its doctrines, and its judgments, must become exclusive and bigoted. If the wisest and most sincere of men are included among its members, for the very reason that they are sincere, learned, and in earnest, they will use the power of their institution as a Propaganda, and will place a barrier in the way of all those who do not share in their opinions or prejudices. To expect from them any other conduct would almost be to impeach the dignity of their character and the sincerity of their convictions.

How, then, under these circumstances, can we hope to bring to light principles which are not admitted by the school, forms which the school rejects, investigations and experiments which it considers subversive and dangerous? How are we to obtain a young and rejuvenated art, the issue of an unprejudiced examination of many opinions, of the tendencies of our civilization, and of the ever-changing requirements of the day?

Architecture, after all, is but a form given to ideas; it is, as a poet has said, "a book of stone." Taking up the analogy thus suggested, let us suppose that the French Academy had the will and the power to prevent the publication in any manner of a certain order of new or renewed ideas, and could compel all men of letters to express only a certain number of authorized ideas in formulas of language which were used two centuries ago; I ask, Could the Academy have any right to complain of the inevitable monotony, the incomprehensibility, the uselessness of literary works? Would it not be wise, under such a limitation, to read only ancient literature, and to confine all active literary effort to law-papers and mercantile accounts?

In France, the upper classes have a fondness for art, but the lower classes a passion. So long as this passion exists, art cannot be hopelessly degraded, nor its reformation impossible; for whenever art is not imposed upon the workman who is actuated by this impulse, and does not assume the tone of an unimpeachable dogma, whenever it comes to him as a matter to be discussed, and allows him a certain degree of freedom, art will at once begin to assume wholesome characteristics of expression. The numerous body of artisans through whose hands all architecture has to pass in its practical development, is an assurance that it is not quite irredeemable so

long as these artisans retain an innate love for art, and so long as clear argument and plain demonstration can refute the hollow though specious phrases so loudly uttered in accordance with the exclusive doctrines of the schools.

It is a commonly received idea that artists are not positive in character, but are apt to be led away by illusions. I should not think it worth while to dispute this prejudice, were it not that its existence places the reciprocal relation between the artists and the enlightened public in an absolutely false light. Artists, and architects above all, are least likely to become visionary, and most likely to become positive, on the contrary, for the simple reason that, with them, every effort of the imagination translates itself immediately into a fact. Every art-idea, to be expressed visibly, requires a form, a practical means, a handicraft of some kind; this immediately restores to the artist a feeling for reality, and a consciousness of the limits of human power. It is, therefore, no waste of time to reason with artists; and a school of art, to be a school indeed, and something better than a mere protectorate, whose principal concern is to surround itself with submissive disciples, must be erected upon liberty of discussion, upon the unrestricted interchange of ideas, and upon the emulation of rival principles manifesting themselves with perfect freedom, but so chastened by opinion as to avoid eccentricity or excess.

We in France are apt to boast of our superiority over all other nations of Europe as regards art, forgetting that the obscurity with which government allows all questions touching art to be shrouded is accelerating its decline, while in Germany and England there is a liberality of sentiment and a growing enlightenment of public opinion on these points which seriously threaten, not only to overtake us, but to leave us behind. While we, in the absence of a wholesome method of instruction, are doing what we can with our natural aptitude for architectural study, our neighbors are establishing schools, which, far from being exclusive, like ours, are boldly searching among all the original arts of the past for the elements of a new style better fitted for modern uses and necessities. While the laureates of our schools are shut up in the *Villa Medici*, the young architects of England and Germany are wandering over France, Italy, and Greece, studying the architectural developments of every country, comparing them, investigating the workshops, and seeking to make themselves familiar with the philosophy of the various revo-

lutions which have taken place in art. Private associations are forming museums of architectural mouldings and copies, all available to the humblest workman.*

The natural and inevitable deduction from all this is, that, of all the arts in France in this nineteenth century, architecture is in the most favorable condition for a prolonged development of insignificance, unless architectural education shall become more liberal, and the true and vital principles of the art be more widely disseminated. Believing that the only true and healthy architecture of a country is that which everybody in it can understand, discuss, and, to a certain extent, practise, I shall endeavor to remove the thick veil which has so long enveloped ours, and made of it a sort of hieratic art founded upon fictitious dogmas, an empty formula of principles, a hieroglyph, which not even the initiated can decipher, for the simple reason that it does not mean anything.

I remember hearing the celebrated Champollion laugh heartily on examining some drawings brought from Egypt, because the draughtsmen, probably finding themselves pressed for time in the midst of the Egyptian sands, had mechanically repeated certain fragments of hieroglyphs as an ornament over the surface of a column, so that, when interpreted, it appeared that "the joyous-hearted *Ra-men-cheper*, offspring of the sun, entirely despoiled all the granaries and gardens of the city of *Arat-tou*" thirty-two times in succession, which must have been no easy task. In reproducing the forms of classic architecture we have hardly exhibited a higher degree of intelligence. True architectural knowledge does not consist in an exact understanding of the relative proportions of the orders according to the ancients or the modern masters of the Renaissance, in the correct treatment of a moulding, in the conventional relations which exist or are thought to exist between the parts and the whole of an order; it is not bounded by any such precise and artificial limits, but it is based supremely upon reason and common-sense; it consists in knowing how these qualities should govern architectural forms, and mould

* It must be admitted, however, that a retrograde movement has lately been made in England in favor of exclusive doctrines. In a recent discussion the House of Commons decided that the Italian style should be adopted in the new public offices. But when a political body meddles thus with questions of style, there is no serious danger to be apprehended. A style of art cannot be decreed any more than the style of a hat; and this victory of Lord Palmerston in England will result, probably, in building the new offices in the style of Palladio, but there his influence over art will stop.

them so that they shall become the expression of a civilization, — an expression so direct and frank that the common-sense of the people can sit in judgment upon them and recognize what is good and what bad; it consists in erecting common-sense into a standard of criticism, which, although not quite infallible nor philosophical enough to explain its instinctive praise or blame, shall be so prevailing as to compel the freemasonry of the schools to discuss and defend their dogmas, if they have any, or to state the grounds of their opinions, if any such can be found. It consists, finally, in instituting an investigation so thorough into the philosophy of the development of form in the best periods of art, that any given schedule of requirements can be rationally interpreted in the broad light of precedent and according to the most complete understanding of the theory of architectural expression.

Among all civilized nations, of whatever age, the practical requirements of the same class of buildings have been, on the whole, nearly identical; but these requirements have been subject to especial architectural interpretations according to the climate, traditions, manners, customs, tastes, and other local conditions in each case. Thus, for ancient Athenians and for modern Parisians, the requirements for a theatre remain the same as regards the destination of the edifice. In both cases there are required accommodation for numerous spectators so that all may hear and see, a stage, an orchestra for choruses or musicians, waiting-rooms, apartments for actors, corridors for spectators, and ready facilities of exit and entrance. But a modern theatre bears very little resemblance to the theatre of Bacchus. And why? It is because, by the side of this programme, indicating only the destination of the edifice, there are other requirements dictated by local manners and customs. Among these, the single fact that, while the scenic representations of the ancients took place in broad daylight, ours are reserved for the night, is itself enough to create between the ancient and the modern edifice an essential difference of construction, interior distribution, and decoration. And if, to these contrasting conditions, we add the thousand details which our theatrical habits have rendered indispensable, such as scenic effect, the machinery of the stage, the division of the auditorium into boxes, etc., there must result an architectural work which has nothing in common with its classic prototype except name. Thus we have a programme presented to satisfy the same necessity at Athens and

at Paris; but, because the local habits are different in the two places, two edifices result entirely different in character. We are authorized, therefore, to establish it as a general principle that, in every programme of requirements, there is a basis of similarity, as the practical wants to be satisfied by building must be nearly the same in all ages of civilization; but that there is also a distinction of form or style imposed by local and immediate necessities; that architecture is nothing more than the expression of this distinction of form; that the usages of society cannot be expected to yield to any fixed architectural dispositions, but that these dispositions must depend upon the usages and vary with the variations of manners and customs. No one, I suppose, will contest this principle. But certainly, since the beginning of this century, it has not been recognized in practice.

Now, therefore, as architectural composition must consider, first, the general programme of requirements imposed in each case, and, second, the local habits and conditions in the midst of which we live, it is essential, in order to design intelligently, to have a definite programme and to be sensitive to the practical requirements of such habits and conditions. A programme imposed in the time of the Roman Empire, like one presented in modern times, must require windows to give light to the interior apartments; the architecture, which arises to satisfy the conditions of this programme, can in neither case disregard this primary requirement; yet a Roman window does not and cannot resemble a modern window, because the usages are different in the two cases; in either case, of course, the window can be nothing else than an aperture in a wall, but the manner of contriving, closing, and glazing this window, its treatment, whether it is regarded as a means of admitting light from without inward, or of affording a prospect from within outward, the character of the material with which the aperture is built or framed, and of the room into which it opens, — all these things must produce very different compositions of this feature if the architect is alive to the conditions and requirements of his time. Architecture assumes a distinctive character, and attains its proper rank as an index and type of the civilization to which it belongs, when it is not only the faithful interpretation of the programme imposed, but when it is made to assume the forms best and most naturally adapted to the practical requirements of the moment, and suffers all those traditions, however venerable, which interfere with a due regard for the progress of

invention and discovery to be laid aside as antiquities. A people, regardless of these conditions, can have no architecture; with them the architect compiles, but he does not compose.

The architecture of the Egyptians, that of the Greeks, the Romans, and of the Middle Ages in the West, fulfil these conditions perfectly, and this is why the arts of these countries and times have left ineradicable traces in history. Thus the Egyptians, deducing their architectural composition alike from given programmes and from their national customs, obtained a simple and true art. The building, whatever its extent, had but a single axis, all the apartments being *en suite*. The sentiment of *initiation* was carried out, not only in the temple, but in the palace, and it was expressed in both by a vestibule, court, or enclosure, covered or uncovered, and by a succession of rooms, through which it was necessary to pass before arriving at the sanctuary, the extreme room, which was almost always the smallest and the most carefully enclosed. The richest decoration was reserved for the interior. The exterior presented merely an envelope of simple masses; the covered walks or porticos opened on the courts, and never on the exterior. In all this we perceive the influence of an essentially theocratic system. But with the Greeks, on the other hand, the monument, however sacred, was made for the public. It did not conceal, it made a display of its richness. Its portico was on the exterior. The mysterious appearance of the Egyptian monument disappeared. It was the edifice of a republic, not of a theocracy. The Greek city had no palaces, but was filled with private houses and temples and a few other public buildings, such as gymnasiums, theatres, and porticos, — monuments which were rather enclosures, open to the sky, than buildings, in the modern acceptation of the word. Again, the Roman architecture of the emperors had an entirely different character. It is true, they borrowed their temples from the Greeks and their palaces from Asiatic princes; but their public buildings, such as amphitheatres, baths, and basilicas, were developed out of their own peculiar requirements and according to their own genius. That which is deserving of especial study in ancient architecture, whether it belongs to the East, to the Greeks, or to the Romans, is the perfect adaptation of its composition to the manners and customs of the people and to their methods of construction.

In previous Discourses I have dwelt upon the fundamental differ-

ences which made of Greek and Roman architecture two distinct arts, especially as regards construction. The difference between the two architectures is no less marked in regard to composition. The Greek concerned himself little about what we call the plan; while the Roman, on the contrary, held that the plan, or rather the composition of the plan, was the principal consideration of the architect: the plan was, with him, the literal translation of the programme, and the architecture was made subordinate to it. This was because the Roman was not an artist, and because he naturally devoted himself to the practical and exact fulfilment of the conditions imposed before anything else. In this the Roman has recommended himself to the admiration of all subsequent time; and if we, in modern times, have ever separated ourselves from the Roman model, it has been because we are by nature more artistic than the Romans, and have been willing to sacrifice our material requirements and conveniences to the satisfaction of having a nobler order or of obtaining a more striking architectural effect.

In the absence of a thorough understanding of principles and of a clear definition of them, we have fallen constantly into the strangest contradictions. Since the seventeenth century, we have professed to imitate the Romans in their architecture, and yet we have instinctively allowed purely and abstractly artistic considerations to exercise a too predominating influence over our architectural compositions. Wavering thus between two opposing principles, we have produced works entirely destitute of that spirit of frankness which may be called the only true motive of architecture. It is very hard to be Greek and Roman at the same time. The Greeks sacrificed a good deal to form, but the Romans everything to necessity, to the practical requirements of public or private life. Both methods have their advantages. But to use both at the same time is impossible; by attempting it, we satisfy neither the sentiment of the Greek nor the reason of the Roman, and must inevitably erect structures without character.

It is very certain that for us, in the nineteenth century, there is only one true method of architectural composition; and that is to submit implicitly to all the requirements of the problem given us, and then, avoiding any attempt to force modern necessities to fit antique forms, so to modify those forms, that they shall become the expression and the exponent of the necessities we are called upon to

accommodate. A form which is truly such an exponent must of necessity be good and lasting; for all those who have studied architecture for any length of time, without having imbibed too many of the prejudices of the schools, have had occasion to observe that every form which is the unaffected expression of a necessity, even though the necessity is vulgar, has a peculiar charm.

Every part of a building should, therefore, have a good reason for existing in its particular form and place. We instinctively love to look at a beautiful tree, because all its parts, from the trunk which fastens itself firmly in the ground to the topmost twigs which are lifted up into the air and sunshine, indicate clearly the conditions of life and duration which belong to the whole. But if every part of an edifice must, in the same way, have its share in expressing the necessity which called for its erection, there must exist between those parts the most intimate relations. It is in making up an harmonious whole out of such sympathetic parts, that the artist develops his natural faculties, his talents, and his experience. If, therefore, a varied and precise acquaintance with precedent in all preceding styles of architecture is of assistance to the architect in enabling him to see how others have proceeded before him, it is sometimes a serious embarrassment to him; it is apt to encumber his imagination with a thousand forms, all, it may be, excellent in themselves, but, in any combination, mutually detrimental, and, not being able to apply them to his purposes without change, he is forced to such compromises, that his design must inevitably lose character. I am far from lamenting that we have this extensive knowledge of precedent, but that it is so difficult for the architect to prevent this knowledge from becoming his master. The more extensive and exact his archæological information, and the more sensitive his artistic instinct is to the beautiful features of preceding styles, the more self-denial, firmness, and strength of mind are required to enable him to subordinate this information and sensitiveness to the requirements of the object he has in hand; the more necessary it becomes to submit his entangled mass of recollections to the severe chastisement of a correct principle of architectural design; the more numerous and conflicting the elements of an army, the more strict and decisive must be the discipline, which is to make them all available to the uses of generalship. Now more than ever before, therefore, in architectural composition, do we need to become saturated with the broad and true

principles of art, and to class methodically the knowledge of precedent which we have acquired. If an architect, in studying out his plan, does not keep constantly in view the entire structure he is to build, if the general arrangement and masses of it do not remain a fixed unity in his mind to direct every line, if he relies upon the resources of his memory and his sketch-book to apply to every part successively an appropriate form, his work, as a whole, will be indecisive and without unity, character, or frankness; and if, before arranging his plan, he has adopted in his mind a certain favorite façade or architectural combination, simply because it is his favorite, or if he has been compelled to adopt it by the will of others, his work must be bad. Neglect of those invariable principles which are, as it were, the moral sentiment of art,* the absence of method in study and in the classification of the materials we have accumulated out of the past, submission to the fancies of the moment, — these things have filled our cities with monuments approved neither by reason nor taste, however superior in execution and workmanship. If we imitated, not the *works* of ancient and mediæval architects, but the *spirit* with which they usually composed those works, in subjecting form to reason, according to the supreme law of good taste, we should have a distinctive and characteristic architecture of the nineteenth century. As it is, so long as we forget this supreme law, we may be decorators more or less skilful and fashionable as we interpret well or ill the fancies and vagaries of the day, but we shall not be architects.

It is very natural that architecture should be simple or complicated as the requirements to be satisfied by the architect are simple or complicated. There is no more remarkable characteristic in the architecture of the Greeks than the evidence existing in their plans of the extreme simplicity of their national habits. But no Greek would have undertaken the impossible task of applying this same simplicity of form and plan to the exigencies of such a social state as ours. Now the Romans, although they borrowed these forms from the Greeks, rather interpreted than imitated them, and, their programmes being more complicated, extensive, and varied than those which were satisfied by the Parthenon, the Erectheum, and the theatres of Athens, they developed architectural dispositions far more

* I have, I believe, sufficiently insisted on the value and extent of these principles in preceding Discourses; indeed, they may be summed up in one word, — absolute respect for *truth*.

elaborate, and involving new questions of construction; but these Greek forms often embarrassed the Romans, and their modifications of them were apt, as we have seen, to become corruptions. The western mediæval architects, on the other hand, who were almost as practical and much more artistic, finally and conclusively abandoned the Greek forms, thus modified or corrupted by the Romans, to adopt others more in accordance with their resources, manners, and spirit. The investigations of the last twenty years have distinctly proved this.

Now, if the Greek buildings, whether religious or civil, were erected to meet exigencies too simple and wants too restricted to be applicable to Roman customs; if the practical requirements to be met by the mediæval architects differed so much from those which had created the architecture of all preceding times that they, in their turn, were constrained to seek new modes of construction and new forms; and if our modern necessities are so complicated that even the architecture of the Middle Ages cannot be accommodated to them without fundamental changes of form, — by what singular process of reasoning are we, in our days, led to go back to the architectural forms or to the mixture of forms in use among the Romans? How can we, without violence to our habits, apply to our public or private structures the arrangements of plan convenient to the Rome of antiquity? In fact, the more we have occasion to admire the perfect adaptation of Roman architecture to the requirements and the daily manners and customs of the Romans, — manners and customs bearing no resemblance to our own, — the more cautiously should we avoid reproducing that architecture in the cities of the nineteenth century.

Strictly speaking, we can live and be comfortable in a château or mansion of the fourteenth century; but who, in modern days, would like to live in a Roman mansion of the time of the emperors, and where is the sovereign who would be commodiously installed on the Palatine? If it is profitable to investigate the manner in which anterior civilizations have met their architectural requisitions, it certainly is reasonable for us to avoid imitating any style of architecture which resulted from such requisitions. The method of composition in these styles, and not the composition itself, is what we should seek to apply to our own practice, changing, modifying, and complicating our compositions according as our requirements are changed, modified, or complicated. But according to some systems very recently

adopted, it would seem that there is a certain type or form, so admirable in itself, that its application to our architecture is a primary condition of architectural beauty, independent of all considerations of truth and reason. In these schools, the needs of our time, the tastes and particular spirit of our country, the individual inspirations of the artist, our materials of construction, our manner of employing such materials, our modern industry and invention, — all these have little to do with architectural composition. But it fortunately happens that considerations of convenience and economy are so imperious in the designing and building of our private houses, that this academical régime, which straitens and balances, stiffens and formalizes, our public structures, has little comparative influence over domestic architecture, which, notwithstanding the restrictions of municipal law, exhibits, in a commendable degree, a conformity of design to requirements; this is so true, that it is not unusual to see in modern cities, in the midst of private houses perfectly adapted to our uses, new public buildings so incomprehensible and foreign in their character that they seem to belong to a civilization entirely different from our own. In the greater part of these public structures, architecture, instead of growing directly and naturally out of the practical requirements of such structures, and thus becoming a language of form by which these requirements are interpreted to the eye, is imposed like a consecrated art, to the composition and form of which is attached a sacred tradition. Let us have independence enough to see that very many of our public monuments seem built, not to satisfy a definite public service, known beforehand and provided for in all the details of the design, but to present to the eye an architectural mass, a decorated screen to fill up a gap in the scenery of the city. No one can say, in the presence of these buildings, that our age has fallen into universal *positivism*. Our architects select a favorite elevation, and a plan prepared according to academic rules, which are not always rational rules; they study their walls and decorate them accordingly, with columns or pilasters perpendicularly, and cornices or string-courses horizontally; then, after this mass of stones has been covered, incrusted, or sculptured with a design idealized or imitated, no one knows why, from the antique or the Renaissance, they begin to think of distributing the vast spaces thus enclosed according to those practical requirements which should have been the leading motives and impulses of the composition. Thus, palace,

public office, barrack, ball-room, stable, or museum are indiscriminately forced behind the same architectural screen. Then begins the real embarrassment of the architect. Windows must be cut in twain by floors or partitions, stairways must be adapted to gloomy cages, considerable spaces must be lost because no light can be got to them, and useful apartments must be cramped and crowded by the exigencies of the architectural façade; gas must be lighted in broad day in extensive galleries, while closets are inundated with light; porches must be placed in front of doors which were not prepared to receive them, and windows must be fitted with unexpected blinds and shades; the smaller rooms must be cut in two in height, in order to avoid appearing like wells, and the ceilings of halls must be raised at the expense of the upper stories, that the halls may be restored to agreeable proportions; passages must be lighted by inconveniently lowering the height of doors that windows may be inserted above; in short, people must be compelled to live in rooms without air or light in order to present the public with the pleasing exterior spectacle of a range of monumental galleries. But without speaking of these interior distributions, thus tortured for the greater glory of the exterior architecture, we daily see this exterior architecture entirely losing in perspective the charming effects which the architect obtained in his geometrical elevations, because he has not taken into consideration the difference between geometrical and perspective combinations, because he has not dreamed that the shadows he has so skilfully traced upon his drawing at an angle of 45°, and provided for in his design accordingly, would never be projected in reality, and because he has deceived himself concerning the unhappy effect of his sky-line by veiling the unsightly projections under the light tints of his colored sketches. The architects of antiquity, of the Middle Ages, and even of the Renaissance were certainly not less skilful designers than our own, yet they never allowed themselves to be preoccupied by academical symmetries, or to be led astray by the effects of geometrical drawings; the former were arranged with a view to the satisfaction of the requirements imposed, and the latter made subordinate to the dispositions of the plan. They evidently never suffered either themselves or their clients to be deceived by specious appearances upon paper. To obtain this degree of enlightenment, they did not, as we do in the schools, confine their studies to projects of edifices which were never to be executed; they habitu-

ated themselves to seeing and comparing; they applied themselves to practice as well as theory, and never limited their architectural horizon to the walls of one studio or even of one city, though that were Rome itself.

Certainly we have the means and elements of progress in profusion; but one thing is wanting, — a true, large, and liberal method of instruction; a method based, not upon certain corrupted forms, but upon principles; a method which will teach us to see aright and to profit by all precedents, instead of veiling from our eyes entire epochs of art; which will seriously consider and provide for every mechanical expedient and discovery in the science of building; which will develop the spirit of youth instead of confining it in that strait-jacket of ancient prejudices which everybody outside of the School of Fine Arts has laid aside and forgotten long ago.

To make a mystery of architecture, to confine it to certain exclusive conventional methods which the uninitiated can neither know nor understand, will, it is true, obtain for the architect a sort of monopoly, which may have its present advantages *for him*, but which, in the midst of a world of progress and changes, must finally isolate him from the patronage, as it has already from the sympathy, of the public. Already works, formerly confided to architects, are passing into the hands of others, and the acolyte of the architectural myth will soon be left alone with his mystery. In the face of an official school of art, whose system and creed repose on conventionalisms which no one will or can rationally explain, irresponsible *specialties* are arising which tend every day to destroy the unity of art and to take away from the architect the power of keeping architecture in the path of healthy and intelligent development. When the school says, "Let architecture perish rather than principle," we ask in vain what this principle is for which the school would make so savage a sacrifice. It cannot define its principle, for it has none. To be a pupil of such a school may be a privilege, but certainly it does not enable one to struggle against the elements which are every day encroaching on the province of architecture, and detracting from its power to become a type of the times in which we live.

But to return to composition. The first condition of design is to know what we have to do; to know what we have to do is to have an idea; and, to express this idea, we must have principles and a form, that is, grammar and language. Now as the grammar of archi-

tecture is properly a mere affair of common-sense, it ought to be intelligible to everybody. But to be able to understand and use forms, the visible language by which our ideas, when rationally arranged and organized, are to be expressed, requires a long course of theoretical and practical study, and a spark of the sacred fire of inspiration. To design, therefore, we must first regulate our conceptions according to certain immutable architectural rules, based upon common-sense, and then have in our head and at our fingers' ends forms pliable to the freest expression of these conceptions. We have no right to expect genius of an architect, but we can require reason, and a form which can be explained and understood. Now, it so happens that in our time, instead of thus basing the first conception of a design upon a common-sense view of the practical requirements to be met and solved by architecture, it has been the custom to begin with certain formulas, derived in a greater or less degree from a very ancient style, and to distort and torture the whole architectural idea to meet its rigid exactions. Form is made the law instead of the language of art, as if in literature the idea, which is primary, were made subordinate to certain rules or styles of expression, which are secondary. It is true that a few liberal minds among us have professed eclecticism, and have undertaken to study and use impartially the whole range of architectural precedent, without confining themselves to certain eras of art; but, in practice, this liberality has been able to produce only a sort of *macaronic* language (if I may be allowed the word) whose sense no one can understand. Under such circumstances, however impartial we may endeavor to be, it is very difficult to give to every form and style the place which belongs to it with respect to any architectural idea we have to express. We instinctively select; and selection implies preference, and preference brings us back to exclusion. Fortunately for antique, mediæval, and Renaissance architects, they were less familiar than we are with the great range of historic precedent, and therefore were free from these embarrassments. They proceeded always from invariable principles; they organized their ideas according to the practical requirements of their programmes; and, to express these ideas in architecture, they had a system of forms or a style, admitted in their time, more or less elastic to the uses of expression, but always appropriate to the principles from which they started. They possessed a single language, and we have many. If they con-

cerned themselves with anterior forms, these forms were not applied to use till they had been passed through the crucible of their own time and had been transformed. This fact may be noted at the epoch of the Renaissance, and, later, at the beginning of the seventeenth century.

The architects of the sixteenth century, who admired the remains of Roman antiquity, and, in good faith, believed themselves to be inspired with a true sympathy for antique forms, used them, by habit and by tradition, with a liberty so complete, and knew so well how to submit them to the necessities of the time, that they transformed, but did not copy them. Antique art was, as it were, a language, which they unconsciously translated, so that, wishing to speak in Latin, they really spoke in good French. Although the influence of antique art may be recognized in this involuntary translation, it only served to give the architecture of that period a peculiar turn and a singularly piquant character. When we examine what remains of the châteaux and palaces of the sixteenth century, such as Chambord, Madrid, Ecouen, Anet, some parts of the Louvre, etc., we can easily see that, although their architecture evidently grew up under the shadow of Roman antiquity, it was nevertheless quite different from Roman art; it was a truly French art, holding still to French traditions and in perfect harmony with the spirit and tastes of the time, which renewed or rather continued an old form and appropriated it to assist in the development of the national architecture. The same immutable principles of truth which had inspired the development of ancient and mediæval architecture governed the art of that epoch, and the forms which the public taste of that time required to be renovated from antiquity were never treated as superior to these principles, but always as subordinate.

Observe, in illustration of this interesting fact in the history of art, that, both in the civil and religious monuments of the Renaissance, the composition of plans was modified, not according to an imported fashion, but only in obedience to the new requirements of public and domestic life as they arose. Thus the plans of palaces, châteaux, mansions, and churches at that time differed very little from those of the fifteenth century, which, in their turn, were developed naturally and with no forced complications from the dispositions of the fourteenth and thirteenth. The primary idea in composition, that which dominated all others, was always to arrange

the building according to the exactions of the civil or religious habits of the day. This was the sole motive in the architectural conception, and, to express it, the architect took a foreign style, but modified it honestly to suit the idea. But under Louis XIV., as is shown in the colonnade of the Louvre, the imported style began to be the master of the architect, and his primary idea was to imitate a Roman Corinthian order, without concerning himself with the reason for so doing, or with the adaptability of the order to the necessities of the building to which it was applied.

This fashion of reversing architectural composition by making the most direct expression of a practical requirement secondary to the adoption of a style is the most fruitful source of decay in architecture. Experience is proving this in the fact that our monuments are daily losing more and more the characteristics of individual expression, and the power of architecturally manifesting their use or destination. Architectural composition, instead of being a logical deduction from the different elements which ought to make up a building, from the immediate schedule of requirements, from contemporary habits, tastes, traditions, materials, and workmanship, has become little more than an *academical* formula. This method, based, as it is, not upon a correct feeling and practice of art, but upon a theory which is becoming more and more vague, and which, in its relations to its followers, is an undefined mystery, to be approached by processes, not of discussion, but of initiation, this arbitrary protectorate, reared upon blind submission to dogmas, conducts architects to isolation from public sympathy, if they yield to it, or, if they contend against it, to the most extravagant fancies. Again, it has the graver disadvantage of making good the arguments of practical minds, which are ready to see in works of art only a ruinous and useless luxury, interesting only a small portion of society. Indeed, how can we defend the incommodious splendors of most of our public buildings against the criticisms of those who, without difficulty, can show how unreasonable they are, who, without any practical acquaintance with architecture, can plainly see that the style and forms adopted do not agree with the practical uses they are intended to subserve?

It has already been noticed that a prevailing characteristic of Greek, Roman, and mediæval architecture was the pliability of style to use, so that, if a Roman private house did not resemble a public

building, if a temple was always distinguishable from a basilica, a theatre from a palace, there was the same distinction of character between the churches, châteaux, hospitals, town-halls, palaces, and private houses of the Middle Ages. If mediæval architects admitted symmetry as an appropriate element in monuments, like churches, which had a perfect unity of destination, they excluded it from the château, which was but an agglomeration of apartments devoted to various uses, just as in the Roman villa the several pavilions and buildings which composed it were constructed and grouped, not professedly to make a symmetrical architectural composition, but to obtain the most convenient forms and dispositions. Now, with what consistency can modern architects regard that which they consider admissible in a Roman villa as bad when developed in the Middle Ages? How can they praise the architecture of Italy under the emperors for the very qualities which they blame in that of the third race of the French kings? It is because they have preferred blindly to adopt a ready-made style, presented to them to be learned by heart, rather than a principle, which, to be understood, requires a course of analytical investigation and study, and which, when understood, would free them from the prejudices of schools and sects. They do not like to think that the forms which they have thus committed to memory, as the main end of their education in art, are really but a small part of the knowledge to be acquired before arriving at a thorough understanding of the principles of design.

I refrain from treating here of the edifices of the Middle Ages, because I have elsewhere explained the manner and theory of their development.* But I propose to consider the condition of art at the moment when it entered upon what we understand as its modern era, and when the influence of mediæval traditions was still too strong to be shaken off in a day. I propose to examine the buildings of the sixteenth century, when architecture seemed to have reached its highest point in science and workmanship, when society was undergoing a great moral revolution and breaking free from the last ties which bound it to secular and clerical feudalism, and when the revival of ancient learning and the study of the antique were for the first time occupying the attentive and serious consideration of the civilized world.

When we treat of the history and practice of our art, we find preju-

* See "Dictionnaire Raissonné de l'Arch. Française du X^e^ au XVI^e^ siècle."

dices to combat at every step; and here, at the very outset, we encounter a popular error. It is often said that the French architects of the Renaissance were inspired, at the beginning of the sixteenth century, by the arts of the Italian Renaissance, and even that some of the French monuments of that epoch were the works of Italian masters. The latter notion has been lately refuted in a triumphant manner by M. de la Saussaye, in his "Notice" on Chambord, and by M. A. Berty, in *Les Grands Architectes de la Renaissance*. It is entirely without foundation in fact. As for the former statement, it needs but an intelligent glance at the buildings of the sixteenth century to see that they are Italian neither in plan, style, nor methods of construction, and that French art followed no Italian model. It is important that we should not fall into the common error of dating back the French Renaissance only to the reign of Louis XIV., for even before 1450 it had manifested itself plainly and in a manner which can admit of no doubt regarding its purely French inspiration. Indeed, it would be no easy task to explain the tendency of historians to derive our art from foreign nations. There are provinces of France where, even now, all the Gothic monuments are attributed to the English. The cathedral of Cologne, which in fact is but an imitation of those of Amiens and Beauvais, and fifty years later in date, has for a long time been regarded as the prototype of Gothic art; and, finally, it is said very often that the château of Chambord, parts of the Louvre and of Fontainebleau, are due to Italian artists. It is only when we come to the age of Louis XIV. that we are said to have an art which is really French. Now it was precisely at this time that we began to lose our originality; for what said Philibert de l'Orme to his contemporaries of that date? "You are always ready to prefer foreign to domestic things. Although no country in the world is better or more profusely supplied with building materials of every kind than France, most of you find nothing good but what comes from foreign parts and costs very dear. It is a peculiarity of the Frenchmen of our day to set the arts and artists of foreign nations above their own, however excellent and ingenious the latter may be."

That which is conventionally styled the Renaissance was not an accidental fact, to be retarded or advanced at will and subject to political events. It was rather a continuation of the Roman organization, than a return to a forgotten system. In order that this

singular fact in the history of nations may be understood, it is necessary to glance briefly at the strange condition of Europe as the Romans made it.

In the first century of our era we have observed that the Roman Empire was made up of elements so various that we can discover in it no unity either of spirit or race, — nothing but a vast political and administrative organization, established rather to check than to encourage the peculiar tendencies of the nations under its yoke. In fact, after Nero, the rotten empire was only sustained by barbarians, whether by the force of their arms or by the invigorating influence of the elements which they brought to the support of that effete body of which Rome was the centre. Romans, properly speaking, were finally the least element of the Roman Empire; the army, the generals, the senators, and the emperors themselves were at this epoch strangers to Rome, and often to Italy itself. I have already pointed out this fact as the explanation why Rome did not possess a fine art, but rather the formulas of a vulgar art daily tending towards decline.

Recent philosophical investigations in Germany, England, and France * have accumulated valuable evidence regarding the various and distinctive tendencies of the three great branches of the human race in mental development. But Rome, composed as it was from the beginning of a confused mixture of these races, was never able to give to the arts it controlled the clear and definite impulse of a national unity. It was content to imitate and collect the arts of Etruria, of the Celto-Tyrrhenic races, of Greece, and of the Semitic nations of Asia, and to submit them to the organization of a powerful and practical government. Out of this amalgam it succeeded in composing, for the building of edifices of public utility, certain formulas of universal application, which, for the very reason of their universal application, possessed, as regards style, none of those marked qualities which gave character to the arts of Egypt, Asia Minor, Greece, and Etruria. When the German tribes, which had preserved their peculiar characteristics comparatively pure from foreign elements, ceased, in the fourth century, to guard the frontiers of the empire, and, mingling with the barbarous torrent from the

* See a *résumé* of these investigations in "L'Essai sur l'inégalité des Races Humaines," by M. A. de Gobineau, Paris, Didot, 1855. We cannot too strongly recommend the study of the questions resolved in this remarkable work to architects who are interested in the history of art.

North, precipitated themselves upon the corpse of the Roman body politic, that great political and administrative organization fell, and with it fell the whole system of Roman art, because it was nothing more than a branch of that organization. Now this great irruption, which the colleges call barbarian, but which, as it breathed the breath of a new life into a mere effete and exhausted mass, was in reality a most meritorious act in the eyes of humanity, had, by the intermingling of new elements, overflowing with the principles of life, a peculiar influence over art. Although the Teutons, the Lombards, the Franks, the Burgundians, and Goths were not artists when they overran Gaul, Italy, and Spain, it is no less certain that they stirred up a wholesome art-movement in the stagnant pool of the Roman Empire. It must be admitted, however, that, with all the energy of the Arian blood which they infused into the Roman body, the traditional power of Rome was still great enough to cause the Roman monuments to be respected and even imitated by the Northern conquerors, when they established themselves in the imperial provinces. With the same feeling, Klodowig proclaimed himself Augustus; and, before this even, the first barbarous chiefs were, in the eyes of the Roman populations, who instinctively regarded all sovereignty as naturally belonging to the empire, magistrates instituted under the authority of the emperor.

Now Charlemagne was filled with the idea of restoring this Roman Empire, and, in the eighth century would fain have forced a Renaissance which in the fifteenth century established itself without force. But, under Charlemagne, the Arian elements were too fresh and powerful to make this retrograde movement possible; and, after him, with the feudal disintegration of the empire which he established, arose arts which owed but little to the Romans, which developed in a contrary direction, arrived at rare perfection, and always expressed the mixture of Arianism with those Gallo-Roman races, which, in the northern provinces of France, where these arts were most fruitful, had hardly lost their Celtic purity. In order to establish a Renaissance at that time, or, in other words, in order to dispose Western Europe to return to the political and administrative ideas of the Romans, it would have been necessary to absorb the element of the white races in the great Roman amalgam; a process which actually took place in the fifteenth and sixteenth centuries.

In considering the Renaissance, therefore, not in its details, but as

a great social fact, we must regard it as a continuation of that Roman organization which had been interrupted for several centuries by the abundant energy of the powerful races of the North. Now, in much earlier times, the same races had invaded India, Asia Minor, Egypt, Greece, and, on two separate occasions, Western Europe. By what strange contradiction, then, do we admire the Arians who became Greek and the fathers of Greek art, and treat as barbarians the German, Frankish, and Scandinavian Arians who, infusing new life into the Roman decline, became the fathers of mediæval art? I must admit that it was by a peculiarly happy amalgamation of races that the Arian-Greeks, become Semitic, were enabled in antiquity to produce arts superior to any which have been or will ever be. But if the Arian element, as mixed with the Roman, was less pure, and the conditions of amalgamation less favorable for art, it is evident that this infusion of fresh Northern blood revived the sinking power of Western Europe, gave a new force to its social state, and introduced a new form of art.

If I shall seem to have spoken of the Romans more severely than they deserve, let it be understood that I heartily admire the Roman power, in so far as it was a governing, administrative, and military power; I have no less admiration for Roman legislation, and especially for the respect which the Romans always exhibited for everything clothed in a legal form; but as regards Roman art, I must be permitted to class it far beneath that of the beautiful civilizations (beautiful in respect to art) of India, Asia, Egypt, and, above all, of Greece. To the Romans was wanting that element of race, without which art could assume no original or distinctive form; they were marvellous builders, nothing more. Everything but the mere construction in Roman monuments is Greek, Etruscan, or Asiatic, not Roman. So in poetry; there is no real Latin epic, and, whatever may be said of the beauty of the Æneid, no one will pretend to say that it is a sincere epic poem. It is evident that Virgil did not believe a single word he wrote, no more than the Roman architect of the time of Augustus believed in the orders as forms consecrated to Diana or Apollo. But Homer, or, if you prefer it, the reciters of the songs of the Iliad, firmly believed in their heroes and identified themselves with them; the Iliad, therefore, profoundly moved all Greek listeners when they heard it for the first time, and so long as there remains a thinking being in the world, it will

E. Viollet-le-Duc del. C. Sauvageot sc.

Echelle de 5 0 5 10 15 20 mètres

THE CHÂTEAU OF BOULOGNE, CALLED MADRID.

PART OF PRINCIPAL ELEVATION.

continue to be the most lifelike, most sympathetic, most beautiful, most sincere and noble expression of the emotions of the human heart. In the Middle Ages, also, so much depreciated by all the indiscriminate admirers of the Romans, we shall find, as well in the plastic arts as in poetry, some rays of this Arian genius of the Greeks. Thus the "Song of Roland," which dates from the eleventh century, compared with the romances of the thirteenth and fourteenth centuries, is as Homer to Virgil; it is a sincere epic, not a mere work of genius; a fragmentary poem, it is true, and expressed in imperfect language, but one which, in grandeur of sentiment, nobility of thought, and knowledge of the human heart, can often bear comparison with the very best passages of the Iliad. But the men who sang and listened to this song were certainly no descendants of the Latin races. In respect to human dignity, in respect to art, they were infinitely superior to those races, especially if we compare them with the last Romans who passed their time in writing treatises on grammar, lipogrammatic poems, epigrams, madrigals, and all the petty fancies which were so much in vogue during the decline of the empire. So also the western monuments of the twelfth century, notwithstanding the rudeness of their structure and even the practical ignorance of the artists, exhibit a sincerity, a feeling for truth, a rigidity of principles, a choice of form, far superior to that degenerate, weak, uniform, vulgar art which covered the Latin soil during the second and third centuries. Assuredly, the idea of borrowing such an effete art could never have entered the minds of men who were much better adapted to develop true art than the Romans ever were, even at the moment of their greatest splendor. Although less polished than were the Latins of the Decline of the Empire, they could not but be amazed and delighted in the presence of the prodigious remains of Roman power; but, by the very character of the Gothic blood that ran in their veins, they were forbidden to imitate them.

The first step towards a return to Latin arts was made by the great revolution at the end of the twelfth century, when, as related in the preceding Discourse, the domain of the arts passed into the hands of the lay architects, that is, into the hands of Gallo-Roman races, somewhat modified by the Arian element. Although the architecture of that epoch had no relations with Roman architecture, either in structure or form; although the modern analytic and scientific spirit it exhibited replaced the depraved Latin traditions as well as the poetic

conceptions of the twelfth century; yet the lay architecture of the thirteenth century foreshadowed the fatal fall into the deep grooves of Roman discipline and formalism. Nevertheless, the Renaissance, and the French Renaissance especially, preserved enough of the elements which had constituted the splendor and originality of mediæval art to enable it still to maintain an important place in the history of Western Europe. It developed under favorable conditions which can never occur again; but, while insisting upon the increasing vulgarity of modern art, it is no less our duty to do all we can to arrest it in its decline, and to ascertain if there are not yet some new paths left into which it can be diverted.

The task I have taken upon myself is, I admit, an ungrateful one; and I would much prefer to share in the happy faith of those who firmly believe that the art of architecture is in the path of progress, and that, from the state of uncertainty and transition in which we are, there can be born, as happened in certain epochs of antiquity, — in the thirteenth century and in the sixteenth, — an original and new art, perfectly adapted to our civilization; but without pretending to state definitely that this new birth cannot take place, I trust I may be allowed to doubt it and to give the reasons why I doubt.

Architecture has been brilliant in ancient and modern history only when resulting from certain social shocks occasioned by the amalgamation or antagonism of races, an amalgamation or antagonism which has a powerful influence over all intellectual effort. I do not see that we are living under any such favorable conditions. We possess confused or poorly appreciated traditions, which no one believes, inexhaustible means of execution and powerful industrial resources; but to direct these means, to employ these resources, what have we? Denial or neglect of the most simple general laws; the exclusive spirit of a school or, outside of that, unrestrained fancy; discussions of rival coteries indifferent to the public; ostracism of such individualities as may attempt to tread the correct path of architectural progress; divisions among the imitators of the past, quarrelling about formulas, but no effort to unite on the broad field of principles. But beneath this turmoil in the republic of the arts, we can see a certain patient labor, a conscientious analytical study of the works of our forefathers, the basis of a new doctrine founded upon the most rigorous principles, not upon tradition, and analogous to the movement which released art from the seclusion of the convents in the

twelfth century to place it in the hands of laymen; but what chance has this intelligent *democracy*, in its efforts to emancipate itself, of obtaining the same support and encouragement that our ancestors had under the same circumstances? Are the times favorable for a similar happy issue out of their efforts? Does the public, whose sensitiveness to art is blunted, have an energetic sympathy in the movement? Have we not, in fine, reached a period in the history of art bearing some resemblance to that state of society at Byzantium, when the schools disputed while the barbarians were battering at the gates?

In all questions touching the domain of intelligence there must ever be a struggle between the conservatism which holds to traditions and the reform which would innovate and change. The lay school of the twelfth century had energy enough and was loyal enough to its principles to be able in a few years to substitute for the expiring traditions of the monasteries an art which had grown up in its own bosom, and, adopting an eminently flexible form, lent itself readily to all the uses and transformations of society. But this art, the issue of the intellectual emancipation of the laborious classes of cities, eminently democratic in its character, establishing investigation and reason in the place of theocratic tendencies, soon fell into abuse of its own principles; for the very reason that it was democratic, it could not correct and restrain itself; from deductions to deductions it at length arrived at a mere geometrical formula, till, at the end of the fourteenth century, it reached the last limits to which its principles could be carried; and then there was but one resort left for architecture, to precipitate itself into those paths which had been so long abandoned by the Gallo-Roman races.*

The French architects of the Renaissance are worthy of all praise because, although reviving the forms of Roman antiquity, they still

* Everything relating to the history of art in France is so confused, that we find the defenders of democratic principles condemning that which we call *Gothic* art as a reflection of feudalism. Now the men of the seventeenth century, and Louis XIV. at their head, were much more consistent when they manifested a dislike for this art. But it is strange to see liberals, the adversaries of despotism and privilege, using, in this respect, the same arguments as the great king. As art, in its natural growth, is one of the most energetic manifestations of the spirit and aspirations of the people, Louis XIV. was quite consistent in seeking to crush mediæval architecture under his pseudo-Roman monuments; but, on the contrary, those who advocate democratic principles, freedom of speech and thought, are certainly not consistent in remaining blind to the fact that mediæval architecture is pliant to all the transformations of free society, and encourages that judicious employment of material, means, and forces which is now so generally recognized as the final expression of civilization.

retained their own individuality. Still inspired by the natural practical spirit of the nation, they continued to attach great importance to the material and means at their disposal, to the exigencies of contemporary custom, to traditions, to the influences of climate, and to the convenience of those for whom they built. Not only the monuments of this time, but the treatises, especially the *Traité sur l'Architecture* of Philibert de l'Orme, prove to us how faithful they were to these principles. De l'Orme, in his book,* lays especial emphasis on the conduct of works, on the information necessary to the architect and the liberty he should have in designing, upon the proper employment and selection of materials and the arrangement of plans with regard to aspect, salubrity, and the comforts of life, with practical advice to those proposing to build. "I think it would be well for all architects," said he, "to concern themselves less with the ornaments and proportions of columns and façades, when they build houses, and more with those beautiful rules of nature touching the convenience, customs, and profit of the inhabitants; for decorations and enrichments are made only to gratify the eye, and add nothing to the health and comfort of mankind. Pray observe that, for the want of proper arrangements, dispositions, and accommodations in a house, its occupants are made sick in body and mind, and subject to all sorts of discomforts and inconveniences, which they often cannot account for." What could we say better than this?

Philibert de l'Orme, together with his mediæval brethren, regarded the disposition of buildings with reference to the points of the compass as one of the first conditions of composition, and it is to the faithful observance of this principle that are due most of the irregularities and picturesqueness for which the châteaux or palaces of the Middle Ages are distinguished. Their builders were not unmindful of the traditions of antiquity in regard to this point of site, and even in regard to symmetry, for it would be a mistake to suppose that they systematically disregarded ancient precedent in this respect. Symmetry is a natural desire of the eye, a desire which requires to be satisfied, if it is not at the expense of the positive necessities of life. Yet it is certain that the mediæval architects did not have the same ideas about symmetry that were prevalent in antiquity; they aimed rather to obtain *a balance* of masses and details, than their identical repetition.

* "L'Architecture" of Philibert de l'Orme; Paris, 1576.

I consider it essential to explain these two systems as clearly as I can. They each of them have their advantages and, when not applied intelligently, their disadvantages. It has already been stated that the Greeks, while they submitted each separate building to the rules of symmetry, never considered it necessary to apply the same rules to the grouping of their buildings, especially when these buildings were devoted to different purposes. They used the same liberty in their private houses, which were composed of an agglomeration of distinct compositions arranged, as a whole, without regard to symmetry. The Romans also admitted this wise principle, and their palaces and dwellings presented suites of rooms separately symmetrical, but, in combination, composed only with regard to convenience. Profiting by the "lay of the land," they occupied it with plans skilfully fitted together; but the modern idea of including all the offices and dependencies of the household in an envelope of uniform aspect, for the sake of what is called architectural effect, never occurred to them.

Thus the Palace of the Cæsars on the Palatine at Rome had the air, within and without, of a monumental city, of a group of palaces, not of a palatial unity as we understand it to-day. The same may be said of the imperial seats at Spalatro, Palmyra, etc. The perspective views of domestic architecture presented in antique paintings always exhibit a very irregular combination of regular buildings; and we cannot find in all antiquity, especially among the Greeks, any such architectural dispositions as we see at Versailles or the Louvre, at the Place Vendôme or in the Place Louis XV., with the buildings of the Garde-Meuble, the Rue Royale, and the Madeleine. The plan of ancient Rome nowhere exhibits such balanced compositions of public establishments. The houses were symmetrical only as regarded themselves, and so far as the practical necessities they met and the shape of the land they occupied admitted. Submitting themselves to the same principle in their elevations, the Romans had a separate building for every separate office or dependency of domestic or official life; this building was complete in itself, had its own order, its own roof, and the height most convenient for its own destination, without any compromise for the sake of the other buildings with which they might be connected; Roman architecture never combined these various dependencies under the same roof, in order to obtain an exterior effect of uniformity, as in the case of the Louvre.

When, therefore, we include under the same architectural envelope

all the appurtenances of a great establishment, such as halls, private apartments, staircases, vestibules, ball-rooms, reception-rooms, chapels, galleries, offices, libraries, or museums, we must not suppose that we are really following the traditions of antiquity. On the contrary, in so doing, we are disregarding these traditions much more than did the mediæval architects. I am not arguing about this matter; I am simply stating facts which every one can verify for himself. A Roman palace, like a royal abode of our own days, which required great halls of audience and ready methods of communication, as well as public and private offices and habitable apartments, giving accommodation for all the uses of state and for all the comforts of domestic life, presented a programme much too distinct in its component parts to be included under any uniform façade, or expressed by any balanced masses, without inconvenience or violence to some of its most essential conditions. If we imagine that, in submitting all our architecture since the seventeenth century to this Procrustean process in order to obtain symmetry, we have been developing a real Renaissance of ancient traditions, we are mistaken; or if we think that, in so doing, we have made an innovation which is a mark of progress in advance of all anterior arts, we are very much mistaken. We must not forget, however, that the Romans, as well as the Greeks, always evinced a love for symmetry or balance of parts. Thus, if they built a temple or a room, it was perfectly symmetrical within and without; if they constructed an atrium, a xystum, a basilica, the principal axis divided the whole composition into two identical masses, as far as practicable. The same principle was made good in details; all the capitals of the same order were exactly alike, as well as all the modillions of a cornice. But in this respect we see the first line of demarcation between antiquity and the Middle Ages; and if, in the château of the fourteenth century as in the antique villa, the various dependencies affected forms appropriate to their several destinations, the architectural details were infinitely varied in each order of the château, while, in the villa, each order was submitted in itself to the strictest uniformity of parts.

But we should not deceive ourselves with respect to the effect of this uniformity of details in antique architecture; it is much less grand and imposing than we are led to suppose. We should not place too implicit faith in the designs for the restoration of ancient monuments; in such speculative works we are very apt, in case of

doubt, to lean towards absolute symmetry; whereas, in my own experience, I have often been very much surprised, when examining the ancient monuments of Italy and France, to find notable irregularities just where these theoretical restorations have indicated a condition of perfect symmetry; and these irregularities, so far from being, in every instance, the consequence of an unavoidable necessity of site, often seemed rather a concession to a detail of the programme, or to a fancy of the artist. In fact, the absolute symmetry of architectural combinations, as we understand it, was not known to the Romans; a symmetry of details, which, however, we adopt in a much more absolute fashion than they, did exist among them, but with a certain liberty which the academic school rejects as inadmissible. Now this academical decision is a great comfort to modern architects; for it is pleasant to think, when you have composed a capital or the end of a frieze in one day, you have only to let the stone-cutters reproduce your composition twelve hundred times in three months. The uneasy spirits, who would change such a charming state of things, are certainly great nuisances. Indolent routine is a sovereign, powerful in the multitude of its subjects, and has plenty of advocates; so it is folly to struggle against it.

One of the first conditions of composition among the Romans was fidelity to the nature of the construction employed. The different requirements of a vaulted construction and of a construction covered by a timber roof were recognized from the beginning. Thus, if we examine the plans of the baths of Antoninus Caracalla or of Dioclesian, we can not only comprehend the fact that these structures were composed of large and small rooms, all vaulted, but can even give the form and structure of each vault; and, in the same manner, it needs but a glance at the plan of the Ulpian basilica to be assured that it was covered by an open timber roof. To this extent did the mode of construction influence the architectural compositions of the Romans. More than this, the destination of an edifice, and of all its parts separately, imposed upon them certain dimensions and forms, whether as regarded surface or height. This is evident, not only in their baths and palaces, but in their simplest and most vulgar edifices. We observe the same correct tendencies in mediæval buildings, although different in form and construction. In both cases the structure and the object of the building were recognized in the plan; the plan governed the whole; here was the supreme effort of

the architect, for, in making his plan, he had really conceived his whole design, and all the subsequent work, the arrangement of the details, was comparatively easy and amusing. What especially recommends itself in Roman and in good mediæval monuments is the frankness with which all the conditions and expedients of building were accepted and confessed in the design, the sincerity with which all the details were subordinated to, and made component parts of, the general conception, the clearness of the conception from the beginning, and the honesty with which the science of the practitioner or the genius of the artist developed this conception into a perfect fulfilment.

Even so early as the beginning of the fifteenth century, science began to take the place of the individual genius of the artist; the methods in the composition of general designs and details began to be circumscribed by geometrical formulas, very ingenious, indeed, but tending to supplant the artist by the practitioner. It was at this moment that, on the banks of the Loire and in Valois, the powerful dukes of Orleans became the protectors of a new school of art, which attempted gradually to sweep away the accustomed forms and characteristics of Gothic art. Thus, in 1440, the Renaissance first made its appearance, and buildings began to be covered with a new envelope; the basis of design remained the same, the essence of composition was not modified, but still remained the true expression of contemporaneous manners and traditions. But the form was changed. This movement received a powerful impulse when one of the members of this illustrious branch of Valois, Louis XII., ascended the throne. But if architecture then assumed a new aspect, if it freely borrowed forms and motives from antiquity, its structure as well as its composition remained French, and reflected the political and social conditions of the time. Under Francis I. even, although the Gothic form had disappeared, the basis of design was hardly modified. Chambord was still, in plan, a mediæval château; the abbey of Thélême, conceived and described by Rabelais, was yet Gothic; and the château of Boulogne, called Madrid, which at that time seemed a bold innovation, bore no resemblance either to a Roman villa or to an Italian palace of the sixteenth century. This château may be regarded as the first example of a mixed taste, holding, on the one side, to mediæval traditions, and, on the other, yielding to the requirements of a court which was ambitious to lay aside the customs of the

past. Yet, so strong is the prejudice which would attribute the buildings of the French Renaissance to Italian artists, that a learned writer, profoundly versed in the study of the arts of the Renaissance, M. le Comte de Laborde, seems to believe that the conception of the château of Boulogne is due to the celebrated Italian potter, Della Robbia. At the same time, M. le Comte de Laborde, like a scrupulous historian, does not entirely efface the name of the *master-mason*, Pierre Gadier; but in this case, as in all others, quite arbitrarily, in my opinion, he classes the French artist in the second rank. This is what he says about the construction of this château: —

"Jerome Della Robbia was the creative artist, the man of genius and taste [we shall presently see that this is a gratuitous supposition]; while Pierre Gadier, the master-mason, the submissive workman, [and why submissive?] was the real builder; and if, in this association of two men so variously endowed, art was on one side and the craft on the other, it is yet possible to understand and define the compromise which was established between them. J. Della Robbia, in the independence of his imagination, gave to the arcades of his two stories an uninterrupted line, and to his apartments a communication by means of a grand staircase; Pierre Gadier, on the contrary, cut this façade, two hundred and sixty feet long, into three parts by means of pavilions, which, rising to the full height of the building, presented to the eye their plain surfaces, as points of repose, relieving the richness of the decorated parts between, and serving also as cages for numerous winding stairs, reminiscences of the *playthings* of our mediæval architects." *

After reading this passage, it is evident that the title of master-mason given to Pierre Gadier places him, in the estimation of M. le Comte de Laborde, in the rank of a contractor or of a sort of subordinate commissioner. But this title of master-mason was in reality a designation lately given to architects. Thus Pierre Trinqueau, architect of the château of Chambord, as M. de la Saussaye† has abundantly proved, had the title of master-mason, and, like Gadier, had "charge of the *conduct* of the works." As for Della Robbia, without diminishing his merit as a potter or as a decorative sculptor, he could have perfectly seconded Pierre Gadier without interfering with his freedom as an architect. I know not what would have been

* "La Renaissance des arts à la cour de France."

† "Le Château de Chambord," par L. de la Saussaye. Lyon, 1859.

the conception of the Italian artist, if he had occupied, in this work, the position which M. de Laborde calls that of the builder,* of whose craft he probably was entirely ignorant; but the merest glance at the plans and elevations of the château of Boulogne proves that the souvenirs of Italy had no great influence over the idea of that edifice. I should be ready to acknowledge this influence, if any one would name a single Italian palace which appears to be the prototype of this building. There were, indeed, porticos both at Boulogne and in the palaces of Italy; but this feature had already appeared, not only in French châteaux of the fourteenth and fifteenth centuries, but in buildings of every age and country. Moreover, these potters were never employed to decorate an entire façade in Italy; we owe this new application of a foreign art to Francis I. or to his humble master-mason. It is worthy of remark that P. Gadier died in 1531, and that Gratien François and subsequently Jean, his son, succeeded Gadier, neither of them Italians. De l'Orme continued the work, and employed Pierre Courtois de Limoges to finish the decoration in faïence.† As for those winding stairs, stigmatized as reminiscences of the *playthings* of the Middle Ages, they proved to be very useful playthings when it was necessary to mount to an upper floor in a restricted space; it would be much more reasonable to give the name of *great playthings* to those double winding stairs, ascending one over the other, which occupy a useless place in so many of our old châteaux, and which, by their exaggerated monumental aspect, remind one of those preambles of the poets, announcing in pompous verse beautiful things which they never give us. Roman architecture, which we willingly cite as a model to follow, gave to staircases only a very secondary importance; and winding stairs were not employed much before the example of Saint-Gilles. Primaticcio, it is true, was charged with the completion of Boulogne, and naturally called to his assistance his countryman Della Robbia, the potter. But, however this may be, and notwithstanding these potters, Boulogne is a French château in plan, elevation, construction, architectural details, and interior arrangement.

The composition of this château deserves therefore to occupy our

* This distinction, established by one of the most enlightened amateurs of the French arts, between the *creative artist* and the *builder*, proves clearly enough how little the art of architecture is known and appreciated in our time.

† See, in the excellent work of M. A. Berty, "La Renaissance monumentale en France," the notice of the château of Madrid.

especial attention, inasmuch as it served as a prototype for all those beautiful country-seats of the sixteenth and seventeenth centuries, so remarkable in France both for their convenience of arrangement and their style of architecture. The château of Boulogne, of which, in Plate XV., we give the plan of the principal floor, had a half-subterranean vaulted basement, a first, second, third, and fourth story, and a story under the Mansard roof. At Paris, a northern aspect is bad; therefore, to avoid this, the architect was careful to plant his château so that all its principal façades should in turn face the sun. The principal requirement of a lordly mansion at that time was a great central hall, a place of reunion, accessible to all, with its dais or reserved space for the lord of the manor and his immediate family; then came independent suites as needed, comprising each a great chamber and a wardrobe, a room corresponding to our modern dressing-room and boudoir. There were also required numerous independent staircases, *playthings*, if you please, but *playthings* which should enable every member of the household to go in and out of his apartments without observation. These were traditions of the feudal house.

The plan of the château of Madrid conforms exactly to this programme. At A is the great central hall, with its dependency B, in the middle of which is built the great chimney C, around which a large number of people could gather and be seated. The architect even took the precaution to open a narrow passage behind the chimney at D, in order to enable people to pass from one side of the room to the other without incommoding those who were seated about the fireplace, occupying the whole space between it and the great door. A small staircase E, in the thickness of the wall, formed a means of communication between this room and the one above. At F and F′ we find eight great chambers, with their eight wardrobes G, each suite being independent, and all having access to the porticos or galleries H, or to the great hall. At I are six staircases ascending the whole height of the building, for the accommodation of the various suites and the porticos or galleries. Moreover, the chambers F′ have a common antechamber K. The porticos H before these apartments are so shallow and open as to deprive them of no air or light, and at the same time they serve as covered corridors to enable people to pass from one part of the house to the other without the necessity of going through the various suites. The por-

ticos arranged in front and rear of the great hall are, on the contrary, very spacious, add greatly to its attractions, and furnish an ample exterior sheltered promenade. In opening doors and windows in the walls, the architect had regard solely to the convenience of the apartments; and, although he sought to give to the mass of his building a perfectly symmetrical aspect, he troubled himself little to make the axes of his piers between the windows correspond with those of the columns of the porticos. Nor did he hesitate to open oblique passages giving communication between the porticos or chambers and the staircases or wardrobes at the angles of the building, thus affording ample accommodation for ready circulation and the service of the household. This is a tradition of the feudal castle; doors, windows, and passages are arranged with a single regard for domestic convenience and comfort, even at the expense of a corner of a room lopped off, a doorway cut obliquely through a wall, or a centre line disarranged. In elevation, the artist remedied this fault of irregularity (if fault it be) by arrangements of detail, which furnished him with unexpected and charming motives, although they are of a character perhaps not to be enjoyed by artists devoted to the worship of what is called the academic plan. Two broad staircases descend from the whole width of the porticos on both sides of the main hall to the level of the terrace on which the château is built. This is another tradition of the feudal castle. Now this fashion of disposing a portico before a wall pierced with windows, without manifesting any desire to make the windows appear opposite the openings of the portico, is older than feudalism; it was common in Greek architecture. As all the porticos, excepting those of the central division of the building, are narrow, they need no vaulting, but merely flat panelled ceilings made of stone lintels and a filling in of glazed bricks, thus dispensing with any constructional necessity of having pilasters against the wall to correspond with the columns of the porticos. But with the central porticos the case is different, their superior breadth rendering it necessary to throw transverse arches across from the piers to the wall where they are received by pilasters, thus requiring the windows of that part of the building to be disposed opposite the centres of the openings of the porticos. The influence of the Gothic tradition may also be recognized in the angle-pavilions, which flank the façades and give lightness and movement to the masses of construction between.

In the château of Madrid, therefore, we find the perfect fulfilment of the following essential conditions of a royal lodge of that period: first, an excellent disposition of the building with regard to the points of the compass; second, a large number of suites of apartments grouped as near as possible to a great central hall of reunion; third, convenience of service and ready communications; fourth, rooms which can be placed *en suite* or kept independent; fifth, thick walls and deep rooms to obtain coolness in summer and warmth in winter; sixth, porticos sheltered from the winds by the projection of the angle-pavilions, narrow but with wide openings, so as not to exclude too much light from the windows; seventh, a vaulted and well-lighted basement for offices and kitchens. For a prince like Francis I., this was not a royal residence, like Fontainebleau or Chambord; it was rather a pavilion, where he could sojourn with a small and select court; but it was a charming retreat, surrounded by a park about five miles in circumference; and, with a few modifications of detail, it would still be found in all respects a magnificent château, convenient and comfortable even for modern usages. The story above the one which we have described is nearly identical with it in plan.

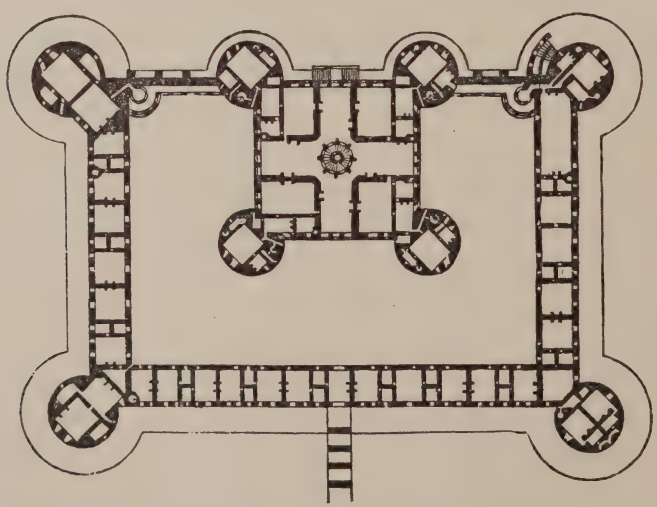
The elevation of this château, of which we give, in Plate XVI. two thirds of one of the principal façades, is a complete and faithful expression of the plan. All the interior dispositions, even to the number and character of the apartments, are plainly written upon the exterior. The general outline is very happy, and the whole architectural mass, enlivened and made brilliant by enamelled terra-cotta or encaustic tiles, inserted in the friezes, in the spandrels between the archivolts, in the pediments of the windows, in the string-courses, and in the upper piers, is, as it were, supported and enclosed by pavilions, presenting solid points at the angles.

Now this château bears no resemblance to ancient Roman architecture, nor does it recall the Italian palaces of the fifteenth and sixteenth centuries, either at Florence, Rome, Venice, Sienna, Brescia, Verona, or Padua; nor yet is it like a lordly residence of the best feudal times; but, if its prototype is to be found anywhere, we must seek for it among those old French mansions, so well adapted to the wants of those who built them, but, ruined and neglected as they are, now so little known and appreciated.

If we would realize the character of the more familiar court of Francis I., we shall find it nowhere so plainly expressed as in this

château of Boulogne. In the arrangement of its apartments it implies brilliant reunions of a select assembly, and yet the complete independence which each member could enjoy at his will. Each guest could leave his apartment and enter the gardens without his absence being noted. This independence may be remarked even in the arrangement of the great central hall, which is repeated in the story above; for if the sovereign desired to be surrounded by only a small number of his courtiers, he withdrew to the smaller adjoining apartment B, while the other members of the court were left free to enjoy themselves and converse in the principal hall. During the heat of the day the porticos facing the northeast afforded a cool promenade; or, if the weather was cold, those opening towards the southwest enabled them to exercise in the sunshine; in both cases, the projections of the narrow pavilions or turrets sheltered the promenaders from the wind. From these porticos there was easy access to all the rooms of state and private apartments of the household in every story. It is evident, from the ingenuity of these dispositions and their accommodation to especial habits, that a carefully conceived programme of requirements had been imposed upon the architect.

Fig. 75.



The scrupulous exactness with which the architect observed all the conditions of this programme, and yet, although under such restraints, the elasticity and docility of the architecture he employed, and his individual independence in employing it, are matters which deserve our especial study.

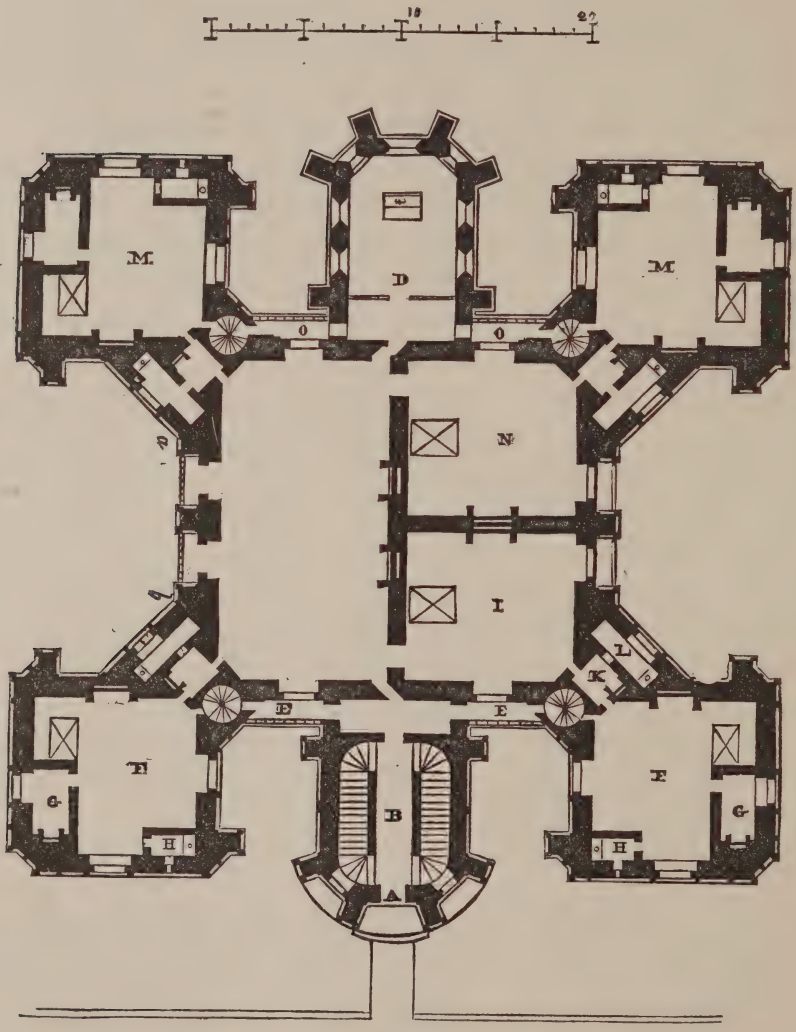
The château of Chambord (Fig. 75, scale one demi-millimètre to the mètre) presents an analogous plan, although on a much larger scale and under conditions more monumental: a grand central hall or *corps-de-garde* in the form of a cross, with a gigantic double winding staircase in the middle, giving access to each story; and then, to each story of the central hall, two stories of small apartments, each suite having its separate staircase and access to the central hall. The construction of this preceded that of Boulogne by several years. The château of La Muette, on the contrary, on a scale smaller even than that of Madrid, furnishes us with a plan conceived after very nearly the same programme.

The château of La Muette (Fig. 76, scale two millimètres to the mètre) was also built by Francis I., "who," said Du Cerceau, "after having built the château of Saint-Germain-en-Laye, and finding it very much to his taste, chose a site in the neighboring forest about two leagues from the said château, near a little marsh, the retreat of the wild game when wearied with the chase; and he built there this hunting-lodge for his convenience when in at the death, and called it *La Muette*, as it was a secret place, shut in on all sides by the close forest. Nevertheless, as it was right-royally built, it was not so retired and concealed as the name would seem to imply, for its height arose far above the surrounding trees." Under these circumstances, the requirements for this royal lodge must have been dictated by the prince himself, in his desire to have in the heart of the forest a tranquil retreat, where he might repose and enjoy himself with a few intimate friends after the fatigues of a day of chase; and we shall find that the singular arrangement of this lodge exactly satisfied all these conditions.

The first floor was raised upon a basement which was occupied by the domestic offices of the establishment. The entrance of the château was at A, to which access was obtained by a little bridge thrown over the moat. On each side of the passage B was a staircase, with a common landing-place over the passage; to this we shall have occasion presently to return. From the passage B, by one of those oblique entrances which were so common in those days, entrance was obtained into the great hall C, which had windows on three sides, two balconies, two chimney-places, two doors giving access to two state bedchambers, and another door opening into the chapel D. From the passage B, by the uncovered galleries or balconies E, communication

was obtained on either side with winding staircases, ascending the whole height of the edifice, or with the apartments F, each including a bedchamber, a *garde-robe* or boudoir G, and a closet H. Each boudoir and each chamber was supplied with a fireplace. From one

Fig. 76.



of these suites, as well as from the great hall, there was direct communication with the apartment I, also containing a boudoir K and a closet L. Two other suites M, equally complete, were accessible from the hall, from the apartment N, or from the exterior by means of winding stairs, which descended to the basement, thus enabling the

guests to obtain independent ingress and egress without the necessity of passing through the more public apartments. The communication obtained by means of the balconies or open galleries E and O with the four winding staircases were necessary, as the principal hall was two stories in height; or, in other words, as there were only three superimposed halls to five stories of other apartments: thus, of the first four stories of apartments, two were included in the height of the main hall, and two in that of the corresponding hall above it. This same arrangement occurs at Chambord, and it is certainly a very proper one; for a height appropriate to a room thirty by sixty feet would be inappropriate for an apartment twenty-four feet square. This disposition of the great halls in La Muette, each occupying two stories of the smaller apartments, was frankly indicated on the exterior by the arcades on the façade *a b*. In this connection it is proper to state that the construction of La Muette was similar to that of the old château of Saint-Germain-en-Laye; it was built in great part of brick, and consisted, as regarded the central pavilion or main body of the lodge, of arches resting on buttresses and sheltering the windows and balconies. As at Saint-Germain also, all the upper story was vaulted (thus accounting for these buttresses and for the unusual thickness of the walls), and the whole was roofed with a terrace of flag-stones for the convenience of those desiring to enjoy a view of the forest. The grand double staircase served equally as a means of communication with the three stories of principal halls or, by means of the intermediate landing-places and of the central passage, with the five stories of apartments.

In the composition of this plan we discover evidences of the same ingenuity which the mediæval architects exhibited, when they built châteaux to serve the double purpose of fortresses and pleasure-houses; yet already we can see signs of a tendency for symmetrical dispositions becoming arbitrary in their artificial requirements, and, above all, for certain new theories in design, showing a studied effort to break away from the influence of traditions.

But, during this sixteenth century, a brilliant era of activity and agitation, very many enterprises were begun and but few completed, and it would be unfair to form opinions regarding its architecture so often presenting itself to us in unfinished conceptions or in detached portions of extensive designs which were never executed. Thus we can form no idea of what the Louvre of Francis I. or of Henry II.

would have been if completed. The original general plan of the Renaissance palace does not exist, and perhaps it never did exist, for the new constructions only arose to fill the vacancies occasioned by the gradual demolition of the Gothic Louvre of Philip Augustus and Charles V.

Other great palaces, like those of Blois, Fontainebleau, or Amboise, were only ancient castles appropriated to new uses, whose primitive plans therefore underwent but unimportant modifications. The château of Saint-Germain-en-Laye even, although entirely rebuilt in every part, excepting the chapel, which was of the thirteenth century, was certainly nothing more than a modern superstructure built upon the foundations and basements of the old feudal castle. It was not a conception belonging properly, in plan, to the Renaissance.

In 1564, Catharine de Medici, disinclined to live longer in the château of Tournelles, where Henry II. died, selected for her abode a mansion, long celebrated for its salubrious position, outside the city and on the banks of the Seine, where the Duchess of Angoulême, mother of Francis I., had recovered her health. This mansion received its name from the tile-kilns (tuileries) which had been established in its neighborhood since the year 1372. Catharine purchased this mansion, together with the lands which surrounded it, and Philibert de l'Orme was commissioned to construct there a vast palace destined for the accommodation of the queen-mother. The plan of the first floor of this palace has been preserved by Du Cerceau in his great work, *Des plus excellens bastimens de France*. This is, in fact, a very singular design, largely composed, in which the influence of antiquity at length makes its appearance in the most emphatic manner, and French tradition seems quite effaced. It is not easy to understand how the requirements of a princely mansion of that time, as expressed in the châteaux just described, could have been satisfied by a grand plan so monumental in its character and so unpractical in its distributions. Philibert de l'Orme was enabled (see Plate XVII.) to build only that part of his grand design comprised between the letters A and B on the garden side; and even this has been so modified by subsequent constructions that it is by no means easy to find traces of the original conception there. As a whole, this place recalls rather an Asiatic palace than a French château. It must have been the intention of the architect to arrange suites of apartments above the immense galleries C. But the troubles of the League forced

Catharine to suspend the works, and she never lived in her palace of the Tuileries. However impracticable the plan of Philibert de l'Orme may have been, it must be admitted that this palace would have been far more habitable than the present palace of the Tuileries is, with its endless galleries, divided by transverse partition-walls, without fitting accommodations for service, without great halls of reunion, without passages or corridors, and without convenient staircases.

Let us glance at this composition. The principal entrance of the palace was to have faced the city at D, very near where the triumphal arch now stands, built by Percier and Fontaine. We find in the plan a great court of honor E, bordered, in this story, on two opposite sides by porticos or open galleries. Four smaller courts, two on each side of the main court, were probably destined for the service of the palace, and were separated by two amphitheatres; but what purpose these amphitheatres were intended to subserve I cannot tell, unless they were to have been for the fêtes or ballets then so much in vogue. One of them was perhaps intended for a circus or *manége*. The great hall was at F, and its arrangement is very beautiful. Access was obtained to the royal apartments by the ascent of a magnificent staircase, which was extant so late as the middle of the seventeenth century. The porticos H, opening on the garden, carried a terrace, which, although considerably modified in its disposition, still exists. But without discussing the value or authenticity of the plans which Du Cerceau has left us (and I am inclined to think that, in execution, Philibert de l'Orme, who was essentially a practical man, would have subjected them to material changes), let us select a portion of the garden front, and examine its composition in detail (Plate XVIII.).

As regards art, we are so much accustomed to exaggerations, so prone to accept size for grandeur, costly elaboration for enrichment, noise for harmony, that it is difficult to find a true standard of criticism, which will enable us to appreciate that which is delicate, chaste, refined, and conceived in really good taste. Now Philibert de l'Orme was endowed, beyond any of his contemporaries, with the surest taste, the truest sentiment, and the severest principles. This is evident, not only from his works as a practical architect, but from his treatises as an architectural writer. To these we cannot too often refer for instruction in times like ours, when true art has so sadly gone astray,

abandoned, as it is, to the strangest caprices, or to routines little in accordance with modern culture and ingenuity. In the works of Philibert de l'Orme we perceive evidences of a careful and attentive study of proportions, and a harmony in the mutual relations of the various parts, which is apparently simple and easy, but which, in reality, is the result of a perfect knowledge of his art and of the means placed at his disposal. As regards the palace of the Tuileries, in the composition of the portico of the first floor, on the garden front A B, we can see a singularly happy example of French genius, expressed not so much in any especial novelty or freshness of invention as in its peculiar elegance and refinement.

As a whole, this gallery is a composition borrowed from the arts of ancient Rome; but the French artist is apparent in the peculiar structure of the portico, — a structure which is not only frankly acknowledged, but made a motive for decoration. His construction being built up in courses, Philibert de l'Orme has indicated each of these courses by a peculiar treatment of the piers of his portico, and more especially of the Ionic columns which are applied against them. In the latter the fluted stone sections of the shaft alternate with low courses of delicately chiselled marble, the sculpture of the former being bold and sharp, while that of the intermediate marble rings or belts is as flat and refined as the finer character of the material admits. In the designs cut upon these belts, the artist, inspired by a delicate feeling of sympathy, has made use of attributes to express, in the more durable of the two materials, and only in that, the regrets of Catharine as the widow of Henry II.; mirrors and broken plumes appear with clubs (the emblem of force), interlaced with knotted cords (the emblem of widowhood) and blighted laurels.* The proportions of the order, with its high pedestal, making a sort of cloister of the arcade, and its delicate entablature, formerly surmounted by a balustrade, are exceedingly happy. The wall behind is pierced for mullioned windows opposite the alternate openings of the arcade, while in the corresponding blank windows or flat niches in the intermediate spaces of the wall, the masonry is divided in alternate high

* It is worthy of remark, that, among the decorations of the piers and panels in the second story, there frequently appears the well-known cipher, commonly accepted as that of Henry II. and Diana of Poitiers, the H and D interlaced and surmounted by a crown. As it would be a singular impropriety to ornament a palace, built after the death of Henry II. for his widow, with these initials, so often repeated in monuments erected during his lifetime, may not the cipher be rather that of Henry and Catharine, H. and C.?

and low courses, like that of the piers of the arcade. The story above is a continuation of the wall behind the arcade, and is composed of a Mansard attic of long dormer-windows alternating with panelled frontispieces richly decorated, the whole forming a continuous order, whose broken outline is relieved against the sombre roof which rises behind. It is a rich crown to an architecture truly palatial, grand, and noble in its masses, and, in its details, precious and exquisitely refined.

Between the two galleries of this façade was the grand double winding staircase, which was regarded as one of the wonders of the Renaissance. It was crowned by an elegant cupola, flanked by four turrets or barbacans. The two extremities of the galleries were to have been terminated, as indicated in the plan, by two pavilions, containing the private apartments of the palace; they were of good proportions, and so managed as not to crush by their mass the delicate architecture of the centre, as was the case with those erected in their stead by Jean Bullant, after the death of de l'Orme. Although what is left of the works of both these architects in this façade is very much disfigured and overlaid by subsequent constructions, it is easy to see that the architecture of Jean Bullant can sustain no comparison with that of Philibert de l'Orme.

The history of the construction of the Louvre and the Tuileries, during the sixteenth and seventeenth centuries, should make us careful about forming hasty conclusions concerning the compositions of the Renaissance architects. In the midst of the innumerable intrigues and jealousies which occasioned the removal of architects and changes of their designs every few years, it is very difficult to get hold of the first idea, the unadulterated conception of any one artist. What remains at present of the oldest portions of this palace is the result of conceptions so various, superpositions so strange, compromises and adaptations so artificial and arbitrary, that we can scarcely separate from the mass the work of any one man, and must be content with selecting a few scattered fragments of a charming taste, as in this gallery of the Tuileries, in the southwest interior angle of the court of the Louvre, in the lower story of the gallery of Apollo, and in the order extended thence along the quay. If we would know the real sentiments of these architects of the Renaissance, we must examine their written and published works. I cannot here resist the pleasure of again citing a few lines written by Philibert de l'Orme,

setting forth very distinctly the real tendencies of that sober mind in regard to the exterior forms and decorations of buildings. What he wrote so wisely three centuries ago is more than ever applicable to-day: —

"I have always been of the opinion that it would be much better for the architect rather to devote himself to ascertaining and putting into practice the best means of preserving the health and property of mankind than to preoccupy himself with the decoration of walls. But this is not the custom of the day; for many who profess to be architects and conductors of works do not undertake to study this subject seriously, because they know and care nothing about it, and would be very much at fault if questioned about any such practical considerations. And what is still worse, I sometimes observe that noblemen, when building, are much more concerned about the fine ornaments of pilasters, columns, cornices, mouldings, and bases, about incrustations of marble, etc., than about the aspect and site of their houses. I do not mean to say that it is not proper and good to make very beautiful ornaments and very rich façades for kings, princes, and lords, when they want them and are willing to pay for them. When such façades are composed with symmetry and true proportion, and when the ornamentation is applied with good taste and discretion, the eye is delighted and profited. But in reality delicate decoration is much better fitted for boudoirs, chimney-places, baths, galleries, and libraries, whither gentlemen are accustomed to resort and amuse themselves, than to façades, vestibules, peristyles, porticos, and such exterior places. Of course everybody can see that it would be very much out of place in kitchens, or in any of the domestic offices of a household. But when we decorate at all, we should be careful to do so with all the resources of art and all the dignity of architecture, and not by elaborating scrolls and leaves, nor by making those bold projections or extravagant undercuttings, which not only afford lodgment for dirt and all manner of uncleanliness, and for the nests of birds and insects, but are especially liable to be broken off and disfigured in the course of time, and then that which was intended to give pleasure only serves to sadden and disgust. I consider all this a waste of money, even if it does not create also a feeling of melancholy distrust in the future. I advise architects and all those who make building a profession rather to study the nature and requirements of the localities where they are to build than to devote themselves exclusively to prodigality of beautiful ornaments, which too often serve only as traps to catch men, or rather what is in their purses. Indeed, it is much more honest and useful to know how to build a house well and make it wholesome, than to cover it with a chance medley of decoration, without reason, proportion, or stint. But, in order to make houses both convenient and beautiful, I admit that it is necessary to add to our practical knowledge a feeling for the proper relations which the various features should have for each other, and the amount and character of ornament which each should sustain. . . . . The ornaments and decorations of façades should be appro-

priate to their position and *should correspond in character with the interior;* and the interior should be so planned and divided, and the windows so disposed, as not unnecessarily to disfigure the façade. But the system of exterior decoration should also be such as not to interfere with the most convenient arrangement of the rooms within, and not to place any artificial restraint upon the commodious and necessary disposition of doors, windows, and chimneys. Art and nature should accommodate themselves to each other." *

In this passage we see the man who built the château of Anet, who left the mark of his genius upon the palace of the Tuileries, who erected many charming residences at Lyons, and who conceived the mouument of Francis I. at Saint-Denis. But it unfortunately happens that public works are not apt to be confided to such wise, critical, and sober minds as his.† Yet it would seem that the principles thus expressed by Philibert de l'Orme were not without their good fruits, for, after him, caprice, which until then, during the first half of the sixteenth century, had been almost the absolute mistress of artists, began to lose its sway over the French Renaissance, and to be supplanted by rules which grew daily more and more severe. It is true that the events of the close of this century did not favor any tendency to useless luxury, and that the higher nobility of France, who were for the most part Protestants, had something besides sumptuous building to occupy their energies.

But in a work published by Jacques Androuet Du Cerceau, in 1615, there is a collection of designs for country-houses, in which the rational principles laid down by Philibert de l'Orme are scrupulously observed.‡ This collection, embracing designs ranging from the most modest dwellings to mansions of considerable pretension, includes some plans which are charming in composition, and some elevations whose principal merit resides in their strict observance of De l'Orme's rule, to maintain a perfect correspondence between the interior and the exterior. In façades entirely destitute of ornament, this principle is expressed in an arrangement of masses dictated by the plans, in a judicious disposition of roofs, and in a very delicate feeling for proportions. Du Cerceau, like a practical man, furnishes with each plate an explanatory text including esti-

* "L'Architecture" of Philibert de l'Orme, 1576.

† See "Le Grands Architects français de la Renaissance," by Ad. Berty, 1860. This work includes much precious testimony regarding the architects of the sixteenth century.

‡ See "Livre d'Archit. de Jac. Androuet Du Cerceau . . . . pour seigneurs, gentilshommes, et autres qui voudront bastir aux champs," etc. Paris, 1615.

mates and specifications. Many of these plans recall on a small scale those of Madrid and La Muette in having a grand central room surrounded by subordinate apartments. If the king contented himself with a vast hall which served as a daily place of reunion and even for a banqueting-room, private gentlemen had every reason to be satisfied with a similar arrangement; in fact, this was their living-room, where they received, and eat, and spent their rainy days and their evenings in conversations. No one remained in his or her apartment, except to sleep, to dress, or when indisposed.

Fig. 77.

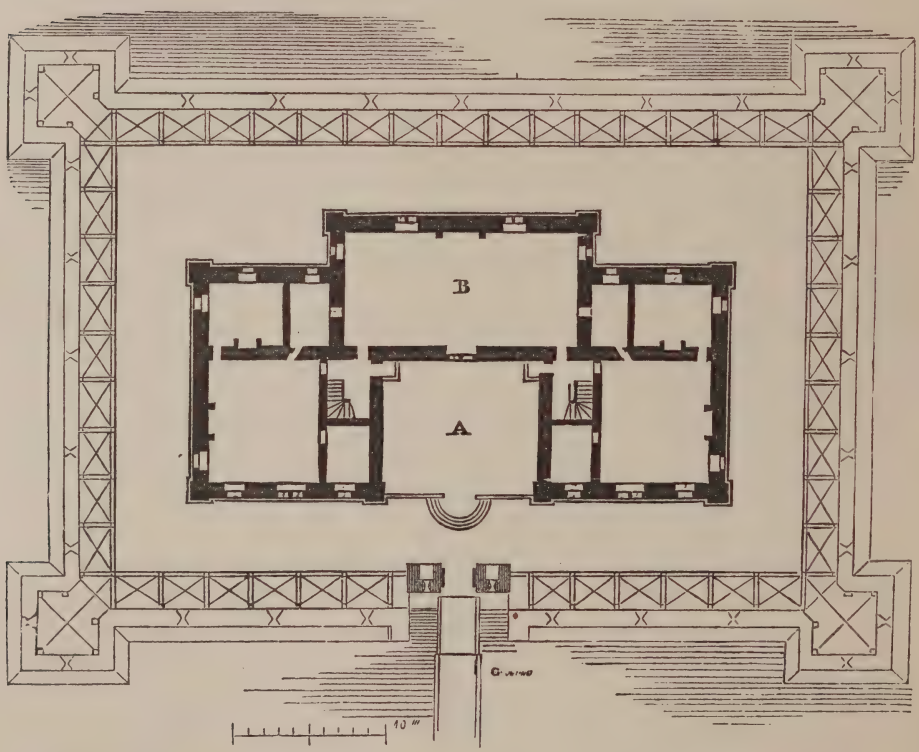
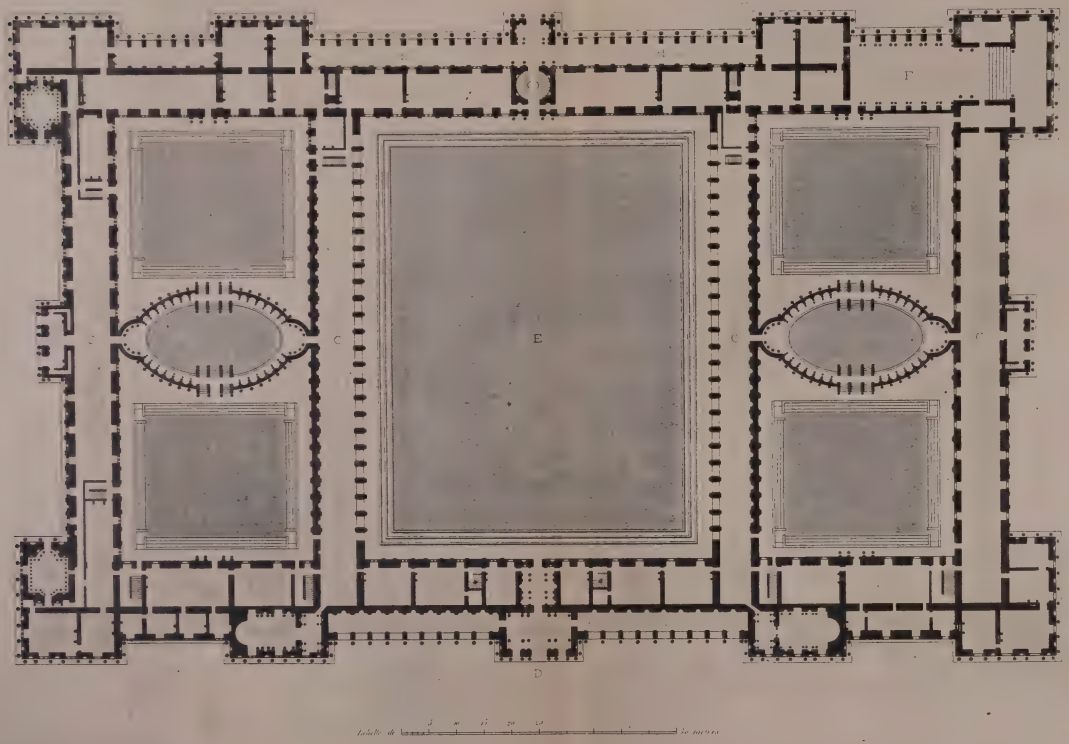


Fig. 77 is one of the plans of this collection of Du Cerceau. According to the usage of the time, the manor-house is established upon a platform having the appearance of a defensive work, and surrounded by a moat full of water. But it will be seen that the architect planted around the curtains and bastions of the defensive work a trellis-work or arbor, thus surrounding the house with a girdle of verdure and furnishing its inmates with a shady walk. At A is a little elevated court with its grand flight of steps; this is a



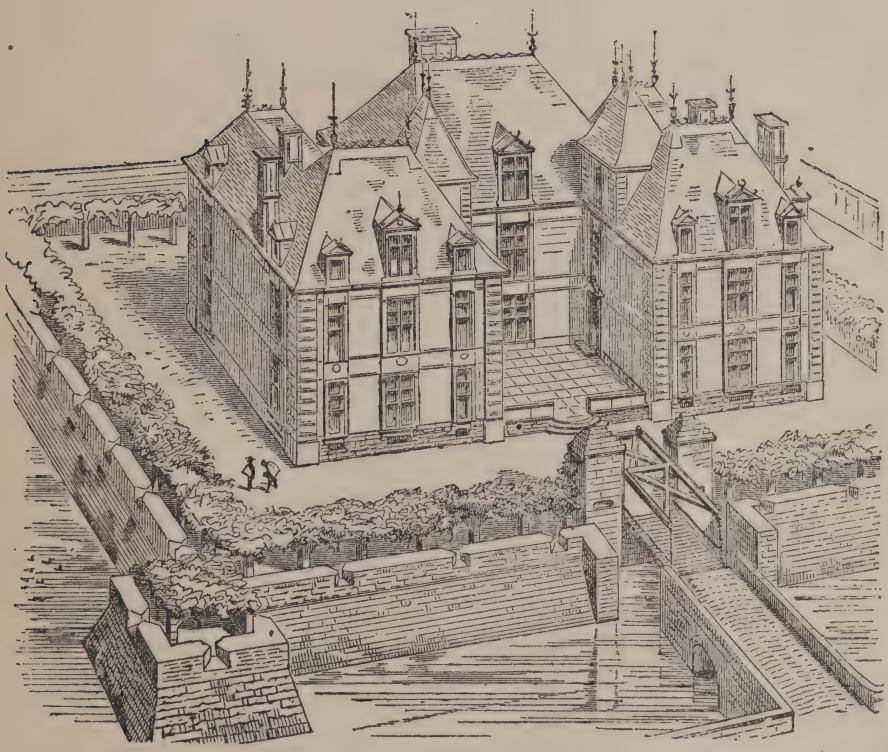
PALAIS DES TUILERIES. PROJET DE PHILIBERT DELORME.

THE PALACE OF THE TUILERIES.

PLAN, ACCORDING TO THE DESIGN OF PHILIBERT DE L'ORME.

mediæval tradition, a reminiscence of the baronial court of honor. The great room is at B, so disposed as to receive light on all four sides, and yet to have communication with four apartments on this floor, and with two staircases giving access to a similar range of apartments above. Each apartment has its dressing-room or wardrobe, and its private means of exit and entrance. Observe also that the staircase halls on the lower floor serve as vestibules for the great saloon as well as for the two principal apartments. Certainly, when we consider the customs of the time, it would be impossible to find a more convenient or more simple arrangement, or one which accommodates itself to a more pleasing exterior architectural effect. Now,

Fig. 78.



if we examine the elevation (Fig. 78), we shall see an example of a charming manor-house, whose exterior perfectly indicates the arrangements of the interior. It was the custom then, as in classic times and in the Middle Ages, to give to each of the main divisions of the house its distinct roof; this allowed the architect great freedom in planting his wings and arranging the general block plan, and at

the same time enabled him to obtain the most picturesque effects of elevation. At a later period the discovery was made that this habit of the builders was wanting in dignity, and so all the rooms of the household, the saloons and chambers alike, were thrown together under the same uniform roof. Yet it must be admitted that this system of giving a separate roof to each of the main divisions of a plan, however modest the house may be to which it is applied, presents to the eye the appearance of a group of buildings much more monumental in character than when moulded together and covered by a single roof, according to the modern fashion. Thus, although very many houses of private citizens in the nineteenth century have more accommodation than is afforded in this château, very few have so imposing an appearance.

The principal quality of the architectural works of the Renaissance, from the middle of the fifteenth century to the reign of Louis XIII., is in a certain *distinction* which has rarely been exhibited in later works. By *distinction* I mean the natural effect unconsciously resulting from the general prevalence of correct taste throughout all the levels of society. This precious quality was developed in the greatest degree in the arts of Greek antiquity; the character of the Roman mind was too coarse for any such expression, but it was the natural art-language of the French architects of the sixteenth century; in fact, this quality of distinction must be a natural, unconscious expression, for if it is forced, if it can only be obtained by a direct effort, it becomes mere affectation and mannerism. It is an easy thing in architecture to make an imposing display, with plenty of money to lavish; the real difficulty is to give a perfume of art to the most vulgar and the most simple things, and to know how to remain sober and unostentatious in the midst of splendor.

The architects of the Renaissance, unlike their more modern brethren, made no pretension to high social position, nor did they form exclusive and pedantic coteries, as ours do, disposed to regard as barbarians everybody outside of their circle of the initiated; but, if they did not assume the airs of gentlemen and modestly wore the costume assigned to their position by the customs of their day, and knew their place, they knew also how the wealthy and the great should be best lodged according to the tastes and habits of rank; they knew how to make their art conform to these conditions, without embarrassing them by any artificial formulas; and, whether they

were called upon to meet a practical necessity or to express a mere fancy, they could do it without abandoning their principles. But from the day when architects, formed in an academic body, discussed art-questions with men of the world, set aside all rational principles of art, and placed purely arbitrary conventionalities in the way of the most direct and sincere expression of the requirements they were called upon to fulfil, architecture was gradually removed further and further from the sympathies of the age; and now, since architecture has become intolerant, unbending, and even tyrannical, the age has at length learned how to do without it.

It is interesting to observe what fine revolutionary airs the Italian artists assumed when admitted into France in the first years of the sixteenth century, how they disdained all the architecture that met their eyes, how disconcerted they were at the manner in which they were expected to meet the requirements of building, and how the noble patrons of architecture, finding that their tastes and habits of life had to yield to the formalities of the imported art, and to make continual sacrifices to its arbitrary rules, finally returned to the native art which accommodated itself readily and happily to all the uses they expected it to subserve.

But Louis XIV. and his ministers amused themselves by discussing high art with their architects; and it is curious to see, under these circumstances, how absolute and pedantic the architects soon learned to be in their reasons why this or that form or style of art should be adopted or rejected, but how little they concerned themselves about the practical wants they were to accommodate and those minute distributions of the plan by means of which a house is rendered habitable and comfortable. There is a curious book on this subject which architects would do well to consult: the Memoirs of Charles Perrault, brother of the architect of the colonnade of the Louvre and of the Observatory.*

Charles Perrault was *first surveyor of the buildings of the king*, or what we would call director or inspector of civil buildings. He had naturally the very highest opinions of his own knowledge about art; but he has given us some very precious information concerning the intrigues of the court of Louis XIV. in respect to the design which the chevalier Bernini was called upon to furnish for the com-

* "Mémoires de Ch. Perrault de l'Academie française, et premier commis des bâtiments du Roi." Avignon, 1659.

pletion of the Louvre, — a design fortunately never executed, notwithstanding the good-will of the king and the boastings of the celebrated Italian architect. Charles Perrault, who desired that the execution of this project should rather be confided to his brother (as really happened in part, as every one knows), considered the chevalier Bernini the most extravagant of men, in which opinion he certainly was sustained by facts, and so the chevalier was politely shown back to Italy. But the truly instructive part of this whole matter is the reason given by the first surveyor of the king why the proposition of Bernini should be rejected. "The chevalier," said he, "never enters sufficiently into detail; he is entirely preoccupied with the idea of making grand saloons for theatres and festivals, and does not descend to accommodate all the innumerable dependencies and domestic offices of the royal household, to arrange which requires a patient investigation and study little suited to the active and prompt genius of the chevalier; for I am persuaded that, as regards architecture, he finds himself much more at home in decorations and theatrical appointments. M. Colbert, on the contrary, required precision; he wished to know how and where the king was to be lodged, and how his servants were to be accommodated. He very rightly thought that provision should be made, not only for the proper maintenance of the comfort and dignity of the king and the royal family, but that commodious lodgings should be arranged and appointed for all the officers of the household, even to the humblest, who, in their own sphere of duty, are no less necessary than the most important in theirs; he did not cease to make, unmake, and modify memoranda of all those points which he considered it necessary to observe in distributing the various offices and apartments, and thus he fatigued the Italian artist, who neither understood nor cared to understand anything about such matters of detail, considering it beneath the dignity of a great architect like himself to descend to such minutiæ."

This is excellent; but when we examine the designs of Perrault and that part of his project which was executed, we may well ask if the excellent reasons assigned for the rejection of the projects of Bernini would not have been equally applicable against the work of Perrault. In fact, if the good sense and correct spirit of Colbert, if the memorials and intrigues of Charles Perrault, have happily preserved us from the Louvre of Bernini, which would have left nothing

of that of Henry II., it is not less certain that the architecture of the physician Perrault was little fitted to meet all the requirements of a royal household. It was an affair of colonnades, peristyles, and orders, not of the most convenient general arrangement of a palace. The king, fatigued with these disputes, chose the design of Dr. Perrault, not because he found it or could have found it more sensible and commodious than the others, but because it was "more beautiful and more majestic." "Of course," added the first surveyor of the royal buildings, "the envy of all the professional architects of Paris was aroused at this selection of the king, and they made many poor jokes about it, saying that architecture must be very sick to be placed thus in the hands of the doctors." The professional architects did not know how truly they spoke. Yet architecture still had a great deal of life left in it; reason and common-sense, notwithstanding the mania for art-formulas which had already begun to take the place of art itself, still found means of making themselves felt. There yet remain to us many very remarkable architectural works, executed at the close of the seventeenth and during the eighteenth century, in which we find grandeur, well-conceived dispositions of plans, and a certain sober elegance, which, for many years past, have been strangers to us.

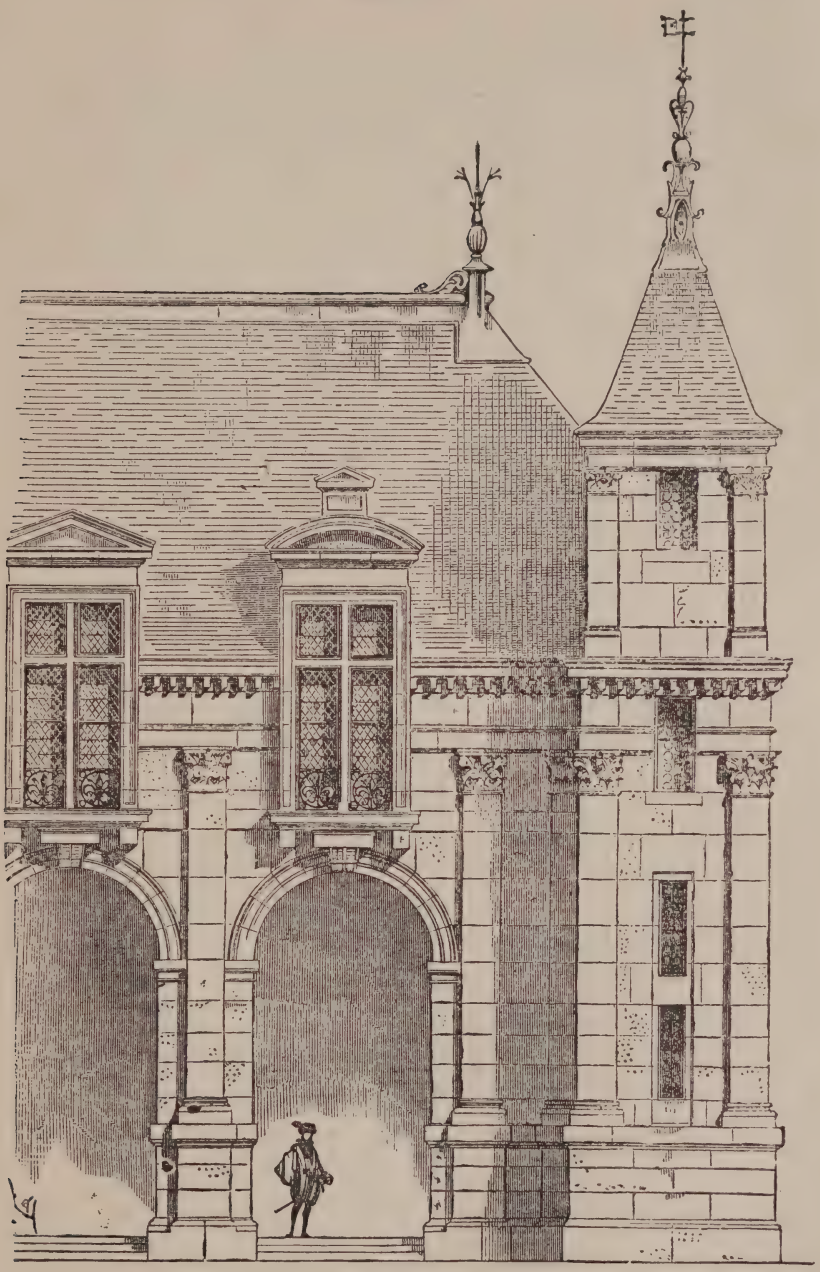
As soon as the wholesome impulses of truth and common-sense were made subordinate to absolute formulas regarding the proportions and use of the ancient orders, to the artificial requirements of symmetry, and to the authority of classic precedent as interpreted by academical rules, architecture fell into its decline. But, in the beginning, the Renaissance did not essentially modify the traditional arrangement of plans and elevations, except as rendered necessary by the natural development of new manners and customs; it remained faithful to the mediæval methods of composition; its characteristic innovation was in the decorative system it borrowed from the arts of antiquity and from the Italian arts of the fifteenth century; but, at bottom, the architecture of the French Renaissance was still the French architecture of the centuries immediately preceding. Thus the old system of expressing the several stories of a house externally by an especial disposition of architectural features arranged to that end was still adhered to; so that when the first Renaissance architects desired to make use of the ancient orders, these orders were placed one upon the other according to the number of floors; this arrange-

ment was adopted in the châteaux of Chambord, Madrid, the Louvre, Ancy-le-Franc, Tanlay, Anet, and many others. But the application of the ancient orders to this system of decoration, although logical and reasonable, had the disadvantage of giving to the façades so decorated a mean and monotonous appearance. The superimposed orders, whether very rich or very simple, cut up the building like a checker-board, and presented an assemblage of horizontal lines (the entablatures) and perpendicular lines (the columns or pilasters), which fatigued the eye by their uniformity, — an objection especially offensive in a country like France, ever fond of variety and novelty.

Philibert de l'Orme, in the composition of the palace of the Tuileries, endeavored to avoid this objectionable effect by using but one order, and that in the lower story, surmounted by a story so broken in its upper outlines as to have merely the effect of a crown; and, again, he endeavored to give his lower order an especial character by frankly emphasizing the horizontal courses of which his pilasters and columns were built, thus breaking their vertical lines. A similar experiment had already been made (and before the superimposition of the stories added by Henry IV.) in the gallery of Apollo and in the adjoining gallery extending along the quay of the Louvre. But, in this case, it was merely an ingenious expedient to avoid the coldness and monotony of the horizontal and vertical lines, which divided the façades into equal compartments; it was no new principle. On examining the monuments built during the second half of the sixteenth century, it is easy to see that the architects were constantly seeking new devices and combinations, and endeavoring to obtain an aspect of grandeur in their edifices by suppressing, as far as possible, the divisions imposed by the heights of the stories. Jean Bullant, in parts of the château of Ecouen, had already tried to break his orders free from the confinement of successive stories. Thus in the court-yard he used a sort of Corinthian veneering comprehending the whole height of the edifice. But, however remarkable this order may be in itself in respect to workmanship, it is but a study, a separate abstract architectural feature, with no especial significance in its application, and having no essential relations with its surroundings.

In the ancient buildings connected with the château of Chantilly, we find very distinctly expressed a desire to obtain a grand effect with an architectural order by extending its Corinthian pilasters

Fig. 79.



through two stories (Fig. 79).* This expedient certainly gave a very imposing appearance to the structure to which it was applied, yet it would be hard to find a reasonable explanation for it.

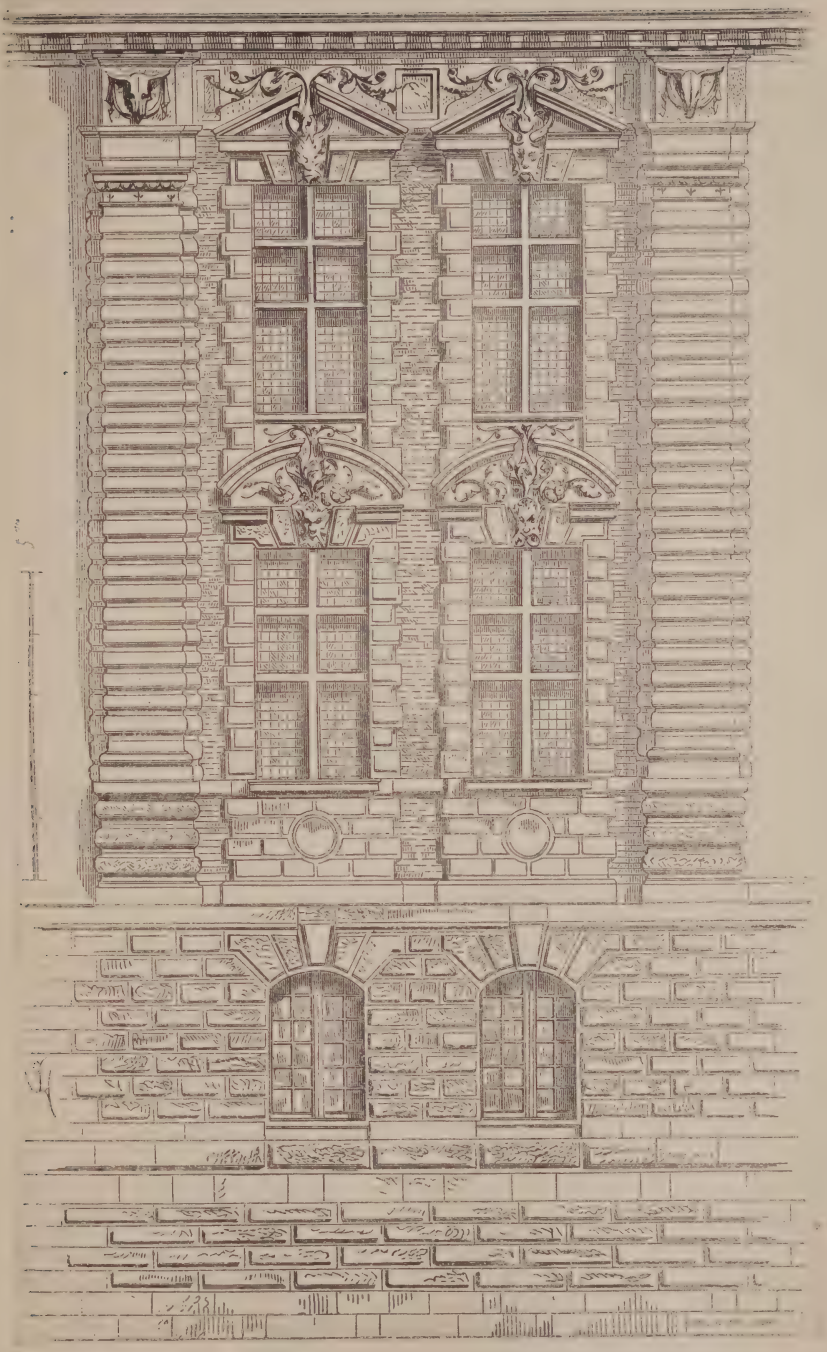
* See Du Cerceau, "Des plus excellens bastimens de France."

But, after all, it was impossible for the architects of the sixteenth century to break away suddenly from the traditional methods they had inherited from their ancestors; the old French school still lived in them; they were still men of taste, carefully avoiding vulgarity and seeking to give to every object, however ordinary and simple, the distinction of a work of art. It is easy to see traces of the conflict which took place in the minds of the architects of the latter half of the sixteenth century, when they desired at once to satisfy the demands of reason and to abandon the monotony into which they had been led by the system of superimposed orders; to effect this object they made use of every imaginable expedient; they used orders of Caryatides and Terms, sculptured piers, panels enriched with ornaments, pilasters with arabesques. Yet, however fertile the architects were in such expedients, so long as they used the superimposed orders, there always remained the same inherent defect of littleness.

Andronet Du Cerceau, in his collection *Des plus excellens bastimens de France*, presents us with the designs prepared for the construction of the château of Charleval, near Andelys. This château, begun by Charles IX., "was to have been," said Du Cerceau, "the first building in France." Although the actual construction proceeded but little further than the foundations, the designs which remain are exceedingly interesting both in the arrangements of the plans and and in the style of the façades; in the latter we can perceive the new devices which were used to obtain grandeur with classic details, and yet without offending against the logical principles inherited from mediæval France. In the exterior elevations of the buildings of the principal court (Fig. 80) we observe that the great order of Doric pilasters was so treated as to fulfil exactly the functions of buttresses or "chains" of stone. To better express this function, the architect divided these pilasters by horizontal lines, so that, regarding them as buttresses, it was allowable to extend them uninterrupted through two stories and the intermediate floor, without grave offence against the laws of good taste. Observe, also, that the cornice is continuous without being broken by the pilasters, whose friezes are stopped under its projection. Irrespective of details, the general disposition still belongs entirely to the system of civil mediæval architecture.

But in the court-yard façade of the same building, which appears to have been built up to a certain height, the architect of Charleval

Fig. 80.



not only emphasized the grand order more frankly, but entirely concealed the presence of the floor between the first and second stories; these conditions, although contrary to the logical principles of mediæval architects, were accepted openly and treated with remarkable address. In fact (Fig. 81), the floor between the first and second stories, naturally laid on the level marked A, is cut by semicircular niches in such a manner that the eye does not suspect its existence, and necessarily embraces the whole height of this order, really extending through two stories, as if they were one. The architect used his skill, not to effect a compromise between the old and new systems, like his predecessors, but to conceal the sacrifices of truth necessitated by the frankness with which he rejected the former and adopted the latter. He evinced the same skill also by interposing between every two arches of his portico an entire bay of the order, and piercing each of these intermediate solids with a little square window, thus not only obtaining a perfect shelter for his portico, but emphasizing the main lines of expression of his order, and giving to the bays between the arches an extraordinary grandeur. It had the additional practical advantage of enabling the cellars to receive light by means of openings under each of the small intermediate windows. It was, as a whole, the work of a consummate artist, and I know nothing in the palaces of the Italian Renaissance which can approach it in nobility of aspect.

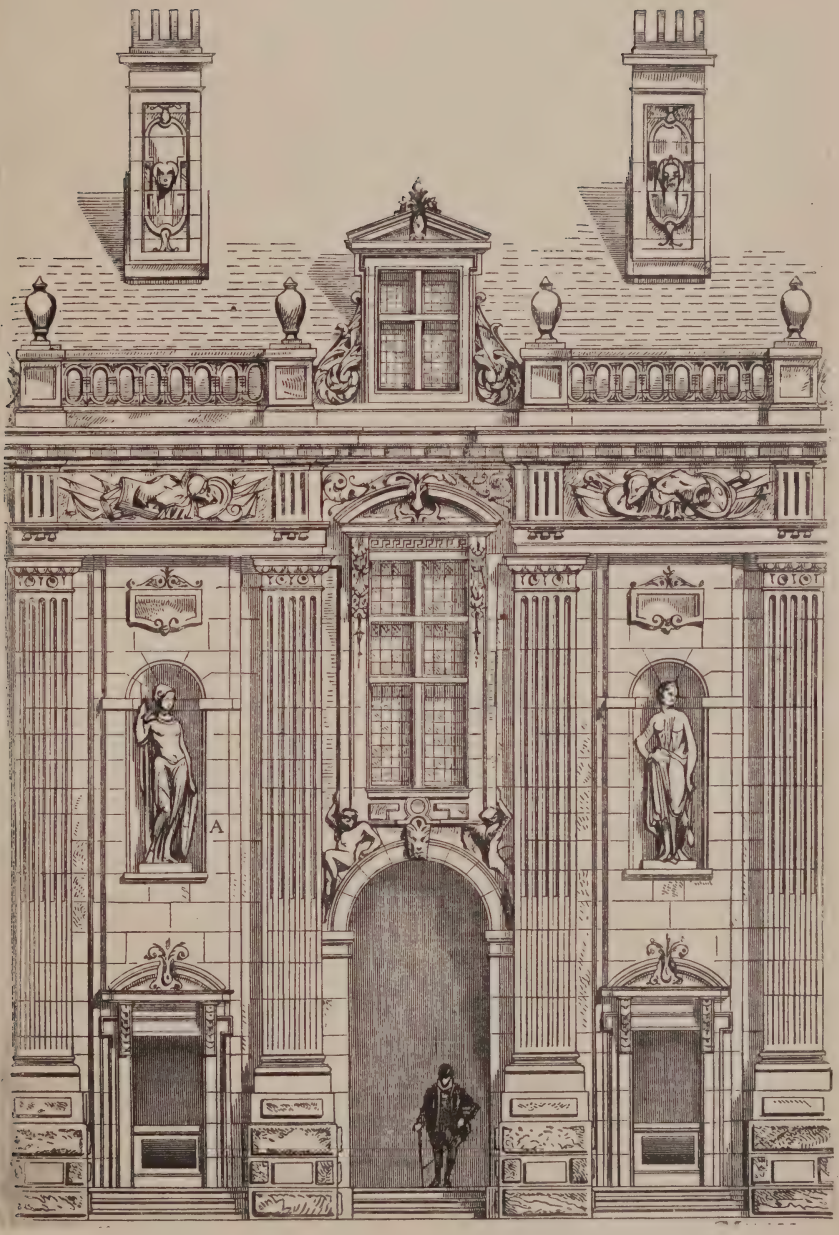
It is therefore certain that, at the close of the sixteenth century, a few architects were bold enough to give up the method of confining the orders to separate stories, and to adopt an order extending unbroken from the base to the cornice of a building of many stories. To the latter the name of *colossal order* has been given. This experiment had an immense success; it was discovered that architecture so treated had a grandeur and dignity which dwarfed into comparative insignificance everything which had been done in the first half of that century. At first the colossal order was only used for very large buildings or for façades of great extent; it was not admitted definitely into architecture till about the middle of the seventeenth century, as in the château of Vaux, built by the architect Le Vau for the superintendent Fouquet. It is easy to understand that this *majestic* style of architecture was very much affected by Louis XIV., whose ideas about art were confined to a sentiment of apparent grandeur, — a sentiment which, it must be confessed, had its advantages, and was

invariably manifested in all that was built during the reign of that prince.

Thus the Renaissance, which had supplanted the art of the Middle Ages at the moment when that art was at the end of its resources, fell into its decline much sooner even than the system it had replaced; in less than a century it said all that it had to say; and then the Gothic could not be revived, for it was quite dead so far as all the uses of life at that time were concerned. Therefore it was necessary to recur to a new style. From that time architecture began to be *imposed*, to be an art to which all considerations of comfort and convenience must be secondary; the colossal order became a tyrant, and established itself as master in the public monument as well as in the private dwelling. At times there were evidences of a reaction against its tyranny, as in the Hôtel des Invalides; but these were the exceptions, and the colossal order remained triumphant until the end of the last century. The last and by no means the worst expression of its power was in the Garde-meuble, and the Hôtel des Monnaies at Paris. If the colossal style had only replaced the insignificant uniformity of the Renaissance by a uniformity on a grand scale, it would not have been so bad; but the latter had the serious disadvantages of throwing everything with which it was associated out of scale, and of being in no respect pliant to the practical uses of architecture.

In my opinion, two or three superimposed ranges of windows cannot be comprised between pilasters or columns thirty or forty feet high with good effect; the arrangement must give the impression that a building built by giants is inhabited by dwarfs. This is the actual effect produced by certain antique monuments appropriated to modern uses, as, for example, the temple of Antoninus Pius at Rome, between whose columns the stories of the custom-house have been built. This want of harmony between the style of architecture and the practical uses to which it is devoted so troubled architects of the last two centuries, that they gradually found it necessary to establish some less violent contrasts of proportion in their façades, and so, using these colossal orders, they finally began to make their windows, for example, colossal also; the result was, that often the practical requirements of the buildings so treated rendered it necessary to cut the height of these great windows in halves with floors, or their width with partitions. If this arrangement produces a satisfactory effect to those who examine these majestic façades from without,

Fig. 81.



those behind find the practical result not so agreeable, and have every reason to complain of the architect and his architecture. This is but one of the miserable consequences of the neglect of true principles. But whatever may have been the errors and exaggerations of mediæval art in the last stages of its decline, it never reached such a state of discord as this. In the Gothic monuments of the fifteenth century, — even those most overloaded with carvings and ornaments, most cut up with mouldings and combinations of prismatic surfaces, — we find always a close adherence to the programme imposed; a perfect compliance with the domestic customs of the inhabitants, if it was a private mansion, or, if it was a town hall or a hospital, a ready accommodation for every public necessity. The first architects of the Renaissance, in adopting a new style without pausing to examine if it had any peculiar adaptability to the manners and customs of modern civilization, thought only of exchanging an old, worn-out garment for a new and elegant one, taking it for granted that the body and soul beneath would still retain all their wholesome liberty; this idea, indeed, for some time, kept them in the right track; but soon the garment became the principal consideration, thus incommoding the body and consequently placing a restraint upon the mind. In this way, at length, a sort of guild of architectural tailors was formed, which only allowed coats of one cut or fashion, whatever might be the peculiarities of the body to be clothed, thus avoiding all the trouble of inventing new combinations for each case, as well as of hunting among bygone fashions for ideas applicable to modern uses.

But if architecture, because proceeding from false principles, went astray, it at least, at the close of the reign of Louis XIV., erred with grandeur. The monuments of that period were the characteristic expressions of a people still having a powerful art-language of their own. If their exterior architecture indicated an imminent decline, if its great aim was to obtain *majesty* of effect at all cost, and if, in so doing, it became more and more unbending to the requirements of society, their interior architecture at least, for a long time, preserved a true character, often expressing with rare felicity the manners and customs of the reign. Even up to the close of the last century, the interiors of palaces and other public monuments, of town houses, and châteaux, were conceived and executed by artists who still preserved some of the good traditions of art; for there is no one who, on

entering a saloon of the time of Louis XIV., does not seem to be transported, as it were, into the midst of the society of that epoch.

It may, perhaps, be permitted to express a doubt as to whether, a hundred years hence, the interiors of the palaces and mansions of our day will have a similar significance. Will it not be difficult to find in them a fair expression of our manners, ideas, and habitual life? But to disentangle this strange confusion of modern arts, to explain this luxury of bad alloy, to deduce a rational conclusion from this poverty of invention concealed under a mass of gilding and ornaments stolen from every country and every age, will be a task for our descendants; why should we trouble ourselves about such things?

At the beginning of the sixteenth century Italy was distinguished for the beauty of its interior decorations in public and private works. The library of the cathedral of Sienna, some parts of the old palace of Florence, the *stanze* of the Vatican, the Villa Madama, the vault of the sanctuary of Santa Maria del Popolo, the Vatican library, the interior of the Farnese palace at Rome and of a number of palaces at Venice and Genoa, present examples of decoration, whose wise conception and admirable execution have been and must still remain an inexhaustible source of profitable study. But what was the great principle observed by the authors of these remarkable works? In a word, it was this: in their interiors, the form of the architecture, the structure, was never dissembled or concealed under multiplicity, extent, dimensions, or exaggerated richness of decorative details.

In my preceding Discourses I have said that the exterior decoration of Greek architecture was merely structure refined into beautiful forms by the strictest application of reason; the elements of structure always appeared under the architecture, as the bones of a man are evident under his muscles. The decorative interior fragments remaining to us from this beautiful architecture are always in accordance with this principle. Under the Roman Empire, if the decoration was sometimes distinct from the basis of structure, it nevertheless frankly confessed its own structure as a parasite. We have seen that the Roman monument, made of rubble and brick, received a decoration of marble without any absolutely necessary relation in character with the structure to which it was applied; but this decoration was, as it were, a second structure whose treatment belied neither its material nor its workmanship. For the purpose of fixing

it indelibly in the minds of my readers, I will repeat here what I have already said: Greek architecture is a naked body, whose beauty is the result of the perfect adaptability of its form to its structure and functions, while Roman architecture is a body clothed; but whether this clothing fitted the body well or ill, as a clothing it was always reasonable and appropriate to its material; it was rich if the material was rich, and simple if the material was poor; its ornaments belied neither its real texture nor its form. During the Middle Ages, in France at least, it was again the structure which was decorated, the naked body, which was made as beautiful as possible; it is in this respect that the architecture of that epoch is so closely allied to the Greek. But the Renaissance endeavored to conciliate these two principles of decoration; the body and the clothing were regarded as one; and, while resorting to antique Roman art for precedents to follow, the architects of that time were struck only by its apparent form, never discovering that that form was a mere envelope and not the true structure, and, under this delusion, they adopted it as decorated structure and treated it according to their mediæval traditions.

It is said by certain travellers that the naked savages in tropic climates, when they see Europeans for the first time, imagine that their clothing is a part of their bodies, and are much astonished when the white strangers take off their hats. Now the architects of the sixteenth century (whom I am far from comparing with these savages) saw in the massive rubble-work of the old Romans, with its casing of stone, marble, or stucco, a homogeneous whole, which they undertook to imitate with mediæval means of construction. And therefore, although their aim was to be like the Romans, they composed an original architecture. But this confusion did not last long, and architecture, in the hands of Philibert de l'Orme and the contemporaneous architects, already sensibly inclined towards antique structure;* as they pretended to adopt the Roman style absolutely, it was logical to submit their construction to this style. Yet the traditions of an art are so difficult to forget, its traces are so deep, that, even at the end of the sixteenth century, we still see the struggle between the two opposing principles in the same monuments; we still see the mediæval decorated structure, the naked body in its own proper image, and, next it, a bit of facing borrowed

* See the chapel of the château of Anet, the tomb of the Valois at Saint-Denis (Marat).

from Roman art. The savage has put on a coat, but he is still bare-legged. But the idea of building up a construction in masses, a construction planted like a block, and then afterwards, or even as the building was going on, to face it with a decoration of stone or marble which was not absolutely essential to its stability, could not readily enter into the mind of an architect who came after the school of the Middle Ages; and, besides, the means at his disposal were insufficient to do Roman work, and feeble in comparison with Roman resources. Under the circumstances, it was natural that he should still continue to honor his construction according to the traditions by which he was surrounded, and that, in imitating Roman architecture, he should obtain but a very meagre reminiscence of it. Indeed, if he had attempted the real Roman method, he would soon have swallowed up the finances at the disposal of the princes and subjects of the sixteenth century. The resources which King Henry II. was able to apply to the construction of all his royal buildings would not, even in ten years perhaps, have sufficed to erect a single establishment like the baths of Agrippa or of Antoninus Caracalla.

In fact, to build to-day an edifice, or rather a group of edifices, like the baths of Antoninus Caracalla, of which we have given a plan, and to decorate them with true Roman luxury, would cost not less than sixty-four million dollars; for these constructions covered about four hundred thousand feet of ground, and certainly it could not cost less than one hundred and sixty dollars per foot on an average to build them, when we take into account the granite and marble columns, the entablatures and facings of marble, the grilles of bronze, the mosaics, the painted stucco, the subterranean works, the terraces, the roofs of lead, the ornamental sculpture, the statues and bas-reliefs. Now the architects of the Renaissance, although they employed neither the enormous masses of rubble nor the precious materials of the Romans, although they were content with a mere *appearance* of Roman work, even under these favorable conditions and to finish a few comparatively small buildings, taxed their resources to the utmost.

The further these architects got from the mediæval methods of building, and the nearer they undertook to approach the methods of the Roman Empire, the greater was the disproportion between the financial resources at their disposal and the architecture they would reproduce. This explains the reaction which took place at the beginning of the seventeenth century, after the religious wars, in favor of

the mediæval methods of construction. Architects were constrained to return to plain walls pierced with windows, and to floors and roofs of wood for public and private buildings alike; they abandoned their vast vaulted porticos, and no longer undertook to build such châteaux as Saint-Germain, La Muette, and Challuau, covered by terraced roofs, supported on vaults, and abutted by thick walls pierced with arcades; in their interiors, they returned to wainscotings of wood, and avoided those stucco embellishments by which they had sought to recall the grand marble decoration of the Roman architecture of the empire. In their exteriors they renounced the superimposition of classic orders, whether of pilasters or columns, so much in vogue in the middle of the preceding century, and contented themselves with "chains" and quoins of stone, and with brick facings between; they reduced the projection of their cornices and string-courses, and ceased to divide their façades with pilasters covered with arabesques. Interior architecture became more severe and quiet, indicating clearly the methods of construction. After all its efforts to imitate antique fragments, and after having submitted to the influence of the Italian Renaissance, architecture recovered its French physiognomy in perfect harmony with the society of the time. But it never recovered its perfection of workmanship.

This degradation of workmanship was the result of several causes. In the Middle Ages, as the decoration and apparent form could not be separated from the structure, the masters of the works were accustomed to trace the mouldings and ornaments upon the patterns, by which the workman moulded or sculptured every stone before putting it in its place. It is not possible to erect a Gothic monument in any other way; and thus, in Gothic times, the workmen became very skilful and intelligent masons and excellent stone-cutters, and the sculpture being so treated, the character of the decoration was compelled to fit the character of the masonry. This having become a fixed habit during the course of centuries, at the beginning of the Renaissance, although the new form adopted did not exact any such procedure, the old method was still adhered to for some time; but the new profiles and ornamental sculpture required by the imported style were more surely and less expensively executed on the masonry after it was laid; the Renaissance architects therefore soon got into the habit of building their walls "in the rough" and finishing them afterwards. Hence the necessity of adapting the masonry to the

fashion of ornament, and to the various architectural members, became less imperious; and it may be accepted as a general rule, that, wherever in the execution of a work there is no immediate necessity of observing a principle, the principle itself, however good, falls into disuse and is forgotten. Still, up to the middle of the sixteenth century, there were many skilful architects, like Philibert de l'Orme, who remained wise and conscientious observers of good methods, and continued to subordinate their masonry to their architectural forms; but these were the exceptions to the general rule. Many of their contemporaries left the care of laying up a façade in masonry to the workmen; and, after this had been done more or less roughly, they proceeded, regardless of the character of the ashlar, to have their profiles and embellishments cut and finished upon it as it stood. From this negligence there often resulted a complete want of harmony between the masonry and the style of decoration adopted. The craft of the mason, thus no longer exacting from him a complete understanding of the ultimate effect to be produced by his masonry, gradually fell into the hands of ignorant workmen, and most of the French edifices built at about the close of the sixteenth century bear the marks of this utter disregard of common-sense and even of the conditions of stability. A conspicuous example of this is in the church of Saint Eustache at Paris. For the same reasons the stone-cutters, being obliged to work on the rough wall after it had been laid, and being necessarily less carefully watched and less closely criticised, became negligent and careless. Then the people, impatient at the long delay of the scaffolding, hurried the workmen who occupied it to a completion, in order that it might be removed and the work exposed to observation; as regards the results, there was no severity of criticism; under these circumstances, the ornamental work, done at so much a yard, was often left incomplete or roughly finished, without any regard for the courses and joints of the masonry.

Gradually that school of sculptors, which had been so brilliant during the Middle Ages and again through the first half of the sixteenth century, lost its power, lost its sentiment of monumental art, and became a mere trade. The types, inspired by antique art and French traditions, so graceful and often so pure at the beginning of the Renaissance, finally became vulgarized and the merest shadows of their former selves, — shadows without style and without character. When, at the close of the reign of Henry II. and during that of

Louis XIII., architecture assumed a certain vigor, a new youth, it did so by requiring from all its artisans, from its masons, its stone-cutters, and sculptors, a more careful study and a greater respect for art. But, during this period, it would seem that the principal efforts of the architects were confined to interior decorations.

In fact the Renaissance, up to that time, had not succeeded in giving to interior architecture any characteristic physiognomy; in this respect it either continued to follow in the tracks of the preceding century, or indulged in mixed compositions, which, although evidently the works of men of skill and taste, evinced that absence of completeness and grandeur which is the mark of an undigested system. The most flourishing periods of the Renaissance had been succeeded by so many political agitations and disasters, that the princes and wealthy citizens had hardly time to complete the residences they had begun, much less to finish their interior decorations; the artists naturally, therefore, labored under peculiar disadvantages in their efforts to establish a complete art, applicable to halls, saloons, and other apartments. But, under the most favorable circumstances, if a system of architecture as regarded exteriors and façades could be modified in a few years, it was a much more difficult task to adopt a corresponding modification in the manner of dividing and decorating them within, as such a modification involved a change in society itself, its domestic habits and daily manners and customs. A nobleman, who required his architect to build the façades of his house according to the *antique*, would have been very much incommoded if his chamber or the hall of his palace had also been arranged according to the antique type. From this we can readily understand how it happened that the plans of the Renaissance châteaux preserved, in their interior distributions, all the peculiarities of the châteaux of the fifteenth century.

But the tranquillity which was re-established in the kingdom after the religious wars, during which the privations and hardships of campaign life had made a notable interruption in the daily domestic habits of the nobility, was peculiarly well adapted to a fundamental change in interior architecture. The opportunity thus afforded to rebuild, restore, or finish the châteaux was improved to perfect also a severe and calm style of interior decoration, distinguished for the grandeur and unity of a well-understood system, very superior in every respect to the style in vogue under Francis I. and Henry II.,

which was uncertain and confused in character, now overloaded with detail, and now poor and bald to excess.* The interiors of the apartments, known as those of Anne of Austria at Fontainebleau; parts of the older rooms of the Luxembourg and of the Hôtel Mazarin, now the Imperial Library; certain portions of the Hôtel Lambert, especially the gallery; the lower floor of the gallery of Apollo at the Louvre, — all these, belonging to the beginning of the fifteenth century, are remarkable specimens of an architecture singularly adapted to palatial interiors. They exhibit richness without confusion, a perfect harmony between the sculpture and the painting, a perfect correspondence of scale between the details and the general proportions, and, withal, an air of grandeur, which we look for in vain in the interior domestic decorations of the Gothic or the early Renaissance periods.

Under Louis XIV. we find these beautiful characteristics well preserved, as in the interiors of the château of Vaux, of the Apollo gallery of the Louvre, and even of portions of Versailles; but it was not long before the sentiment of grandeur, always tending to turgidity and inflation of style, made its appearance on every side, as we can readily see on referring to the work of Le Pautre; the character of workmanship became debased, and sculpture and painting gradually lost their truly monumental qualities in a constant straining after exaggerated effects. By one of those strange transitions of fashion so peculiar to France, this turgidity, this universal and intrusive majesty of style, was exchanged presently for an excessive meagreness and delicacy of details. By the multiplication of its lines interior decoration became, as was natural, a mere flexible dress, apt to assume forms entirely opposed to the true structure, and readily adapting itself to every caprice of fashion and every fancy of

* I trust the opinions here expressed regarding the decoration of the Renaissance will not be misunderstood. There certainly remain to us from the epoch of these two monarchs some very beautiful architectural arrangements, as in the gallery of Henry II. at Fontainebleau; but this is a frank imitation of Italian art applied to the traditions of the great halls of the French mediæval châteaux. As for the gallery of Francis I. in the same residence, it exhibits a complete want of harmony between the scale of the details and the general dimensions; it is true that, as compositions, the sculptures are charming in themselves, but their boldness of execution and their importance as apparent supports are not justified by the delicately panelled ceiling of wood which they seem to sustain. I refer to the gallery as it was before the restorations, which have made it still more shocking. In the cabinet of Francis I., in the same château, there is evidence of great indecision and fickleness of decorative treatment. However graceful its panels and its little pilasters of cabinet-work, there is nothing about it which does not recall the wainscoted chambers of Louis II., although frittered away with fatiguing combinations.

embellishment. Elegance alone remained, as the last reflection of the purer arts of the past, the surviving expression of the national character.

Towards the later half of the seventeenth century the architects, in composing palaces, châteaux, and mansions, concerned themselves very little about arrangements and adaptations for the convenience of the inhabitants; they were preoccupied by the idea of obtaining grand interior effects and majestic ranges of apartments, sacrificing comfort to show; to such an extent was this carried, that the domestic interiors of the sixteenth century can be much more readily adapted to our uses and habits of comfort than can the residences of the time of Louis XIV. Everybody at Versailles, except the king, was badly lodged; there were no passages, no convenient staircases, no wardrobes, but an immense number of great sombre rooms. The memoirs of the time supply us with many curious details about the discomfort of most of the lodgings appropriated to the use of the court. The service was difficult even for the grand rooms of state. But these wretched interiors were concealed behind grand symmetrical palatial façades; and this, after all, was the great end of architecture at that time. From the inconvenience in the interior arrangements of the private houses at the close of the seventeenth century, it would seem to be justifiable to conclude that the apartments before that period must have been even more incommodious. But the conclusion would not be true. During the fifteenth and sixteenth centuries considerations of comfort and convenience controlled, not only the interior, but the exterior of the house. The manners and customs of the time dictated the plan, and the plan imposed the form of the building. This was the prevailing architectural principle of antiquity and the Middle Ages. But it was laid aside when academical doctrines began to govern the arts and direct their development; it was disputed in practice, although no one ever undertook formally to deny its importance and its truth.

NINTH DISCOURSE.

ON THE PRINCIPLES AND INFORMATION NECESSARY TO ARCHITECTS.

IF, in modern times, we occasionally see at Paris and in some of the larger cities of France public and private structures well and intelligently built, and in a fair style of art, it must be confessed that, in the provinces and smaller towns, there is constantly a great deal of building going on contrary to the most elementary principles of architecture. Between a Parisian mansion and the town hall of a rural borough there is not only the distance which separates luxury from poverty, but the impassable abyss fixed between a refined civilization and the most degraded barbarism, — not the barbarism which is the expression of an imperfect social state, but that which is the forerunner of decomposition. Those architects whose official duty it is to examine the mass of designs handed in to be executed in the provinces will bear me out in the statement, that, out of twenty of these designs, where one is passable, half the rest are below mediocrity, and the other half manifest a complete ignorance, I will not say of art, but of the most commonplace practical knowledge. At no epoch in France, before the present century, has such a spectacle been exhibited.

Without going back into antiquity, the most modest house, the humblest chapel in mediæval France was as much a work of art as the baronial castle or the bishop's cathedral. Whether large or small, splendid or plain, they were the work, as it were, of the same skilful hand and the same quick intelligence. But in modern times the art of architecture has ceased to animate the extremities of the political body, and has been concentrated in the great centres of population;

the more lavish and luxurious it is in the metropolis, the more mean and miserable has it become everywhere else.

This is a serious evil, and its causes may be specified thus: first, an official administrative organization little suited to diffuse a knowledge of the arts among the people; second, the absence of a thorough method of art-education; third, the lowering of the standard of taste among the upper classes. While France was divided into provinces, each of these had its capital, and each capital its distinctive school of architecture. Orleans, Poitiers, Rouen, Troyes, Limoges, Bordeaux, Toulouse, Lyons, Dijon, etc., had each, like Paris, its school and its artists, with their local peculiarities; and these schools, even if they were in the second rank, animated the provinces to which they belonged, and spread their roots into the most retired districts. The governors of these provinces were great lords, who, by position as well as education, were ambitious to render their administration illustrious. The corporation-spirit was kept alive, especially among the artists and crafts interested in building, and thus the local traditions were preserved in the most capable hands and directed to the best uses. The various corporations knew, aided, and criticised each other.

Under the reign of Louis XIV., the freedom of these provincial schools was for the first time subjected to limitations. That monarch included the arts in his administrative system of general direction; provincial monopolies were encouraged and all liberty was stifled. One Lebrun became the general superintendent of every production of art in France. This system was of a nature to give a great impulse to art, for a certain time, — a character of unity which belonged to the spirit of the reign; it was, in fact, a Renaissance of the system established under the Roman Empire; the results were naturally the same in both cases; art, thus subjected to official direction, and established as part of the great administrative machine, rapidly declined.

We can easily see to what depths the official art of the empire had fallen under Constantine; and, in like manner, it is very evident that, in an artistic point of view, the monuments built at the end of the reign of Louis XIV. cannot be favorably compared with those constructed in the first half of the seventeenth century. All the operations of the mind need perfect liberty for their wholesome development; and art, which is much more an effort of the mind than a labor of the hand, inevitably fades as soon as it is conscious of any

artificial restraint; forced in a hot-house, it loses its savor, and ceases to grow naturally or to produce wholesome fruit.

Now the architecture of to-day is subject to a species of intellectual government much more strict even than that established under Louis XIV.; it did not share in the revolution of 1789. Isolated, indefinite, a secret science, it has changed the yoke of Lebrun — a yoke which was at least imposed with somewhat of grandeur and originality — for another much more vulgar and exacting, belonging neither to the spirit of our time nor yet to the spirit of our country. Certain paths of investigation and experiment are closed to the architect, and he seeks in vain for any intelligent direction with regard to the few which are left open to him; he is warned to take heed to his steps, but he is supplied with no guiding light; he is told what he must not study, but no one has undertaken publicly to lay down a course which he can follow with safety and propriety. From the official direction of Lebrun, which was bigoted and tyrannical, but, at least, had the merit of power, there is only left a servile subjection to many irresponsible masters.

Architecture, debated and bandied about among officials, amateurs, academicians, professors who do not profess, archæologists, antiquaries with a leaning for classic antiquity, and antiquaries with a leaning for the Middle Ages, men of science, economists, and monomaniacs, in order to live at all, must make a concession to this one, must not offend that, must avoid the persecution of sects, must grope among prejudices, must listen to everybody's advice, must direct all its movements in constant fear of envy, hatred, and malice; and when its work is finished, no one is satisfied, and the whole town repeats the familiar complaint, "Why do not our architects create an architecture which belongs to our time and our country? Here is another building which is neither beautiful nor correct." And yet, in the face of this constant and natural demand for a national art, the architectural precedents which are peculiarly national are the only ones which are not officially opened to study, the only ones, in fact, which are especially excluded and proscribed; a new and national style is asked for, and yet we continue to send our pupils, after an insignificant and insufficient course of study at home, to measure and restore the monuments of Rome and Attica, — monuments the study of which can only be useful to minds prepared by extensive study to criticise severely, to reject with discretion, and to class with discrimination.

If an original design is prepared, inspired by new ideas, it must be submitted to the examination of persons who, by conviction, or rather by non-conviction, are the enemies of every species of innovation and of every new application of ancient styles. It is admitted indeed, theoretically, that the arts of Greece are types of eternal beauty with principles of eternal truth; but those who pretend to make these principles prevail in modern architecture, not by encouraging their development, but by restricting them with conventional rules, forget that Greek artists produced their masterpieces under the protection of liberty, while the arts of Rome, under the restraint of administrative discipline, continually declined from Augustus to Constantine.

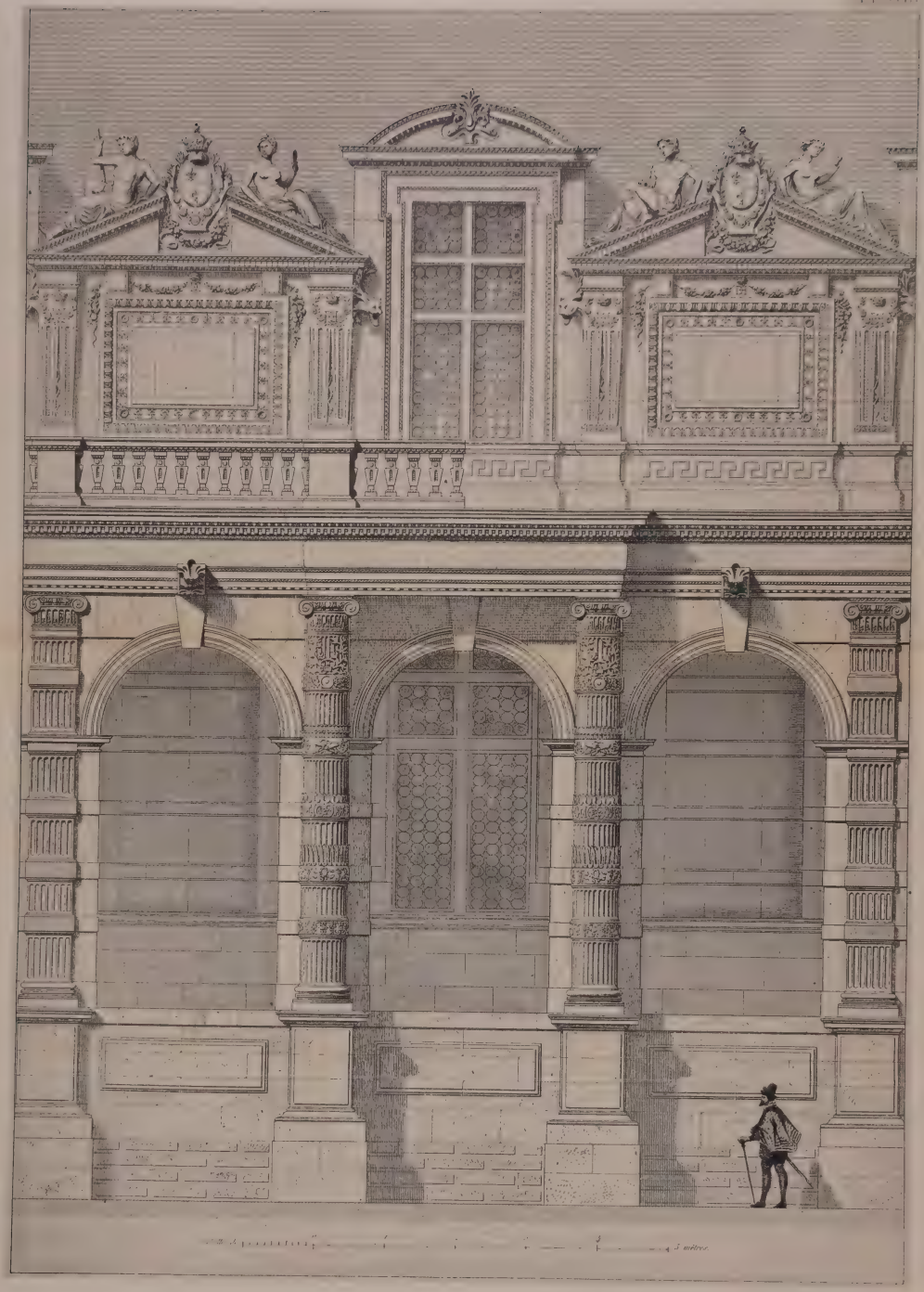
Instead of availing ourselves of the immense resources furnished by modern industry, and by the increased facilities of transportation, to produce a new style which shall be the natural expression of our era and our civilization, we straiten and limit our means under an architectural system theorized out of the past, and conventionalized by academical usage. It is a common complaint that architects have no ideas, and therefore everybody deems himself privileged to impose upon them his own notions. Scientific men are summoned to give their advice in matters of art, and mining engineers volunteer their opinions about the form of a capital. If a statesman is consulted regarding the financial question involved in the erection of a public work, he takes occasion to declare that he does not like pilasters, or that he will not have buttresses under any circumstances; he prefers plain walls, which cost a great deal more, and when the monument is finished accordingly, he complains that the architect is unqualified for his duties, and that his flat walls are like those of a barrack, and that they ought to have been decorated with engaged columns, which in fact are a form of the very buttresses the use of which had been interdicted.

There is indeed a school of architecture in France, but in this school there is no course of architecture taught, or, if by chance there is a course set before the pupils, it is restricted to a few general notions about one of the phases of the art. As for the superintendence of the works, the organization and administration of the workmen; as for a philosophical study of the history of architecture in its relations to the various phases of civilization, and an examination into the causes of its development or decline, with a view to a more

logical and reasonable application of precedent in actual practice; as for the economy of the science of building, teaching how all the local resources of material and skill are to be most judiciously applied in every case; as for the art of so designing that every motive expressed by the artist can be explained and defended by him intelligently and clearly; as for those grand liberal principles, which, when properly diffused, should develop mental activity and encourage a reasonable and actual progress of architecture, — these things form no part of the official course.

Amateurs can never obtain a true standard of criticism except by contact with artists; but to form the taste of men of the world, who may be in a position to exercise an influence over art, it is necessary that architects should know how to explain themselves, and to give the reasons why this or that motive or expression is adopted in their designs; and to be able to do this implies that their conceptions must be capable of explanation and defence. But how can we expect architects to attain this end, who have been accustomed from their youth to employ forms imposed upon them under peril of ostracism, but never explained to them in a sensible and reasonable manner? What are they to say to a client who declares that he will not have such a façade, when they know not themselves why they adopted it rather than another? They are silent because the academical system has stifled all independence of thought, and has repressed every tendency to reason and discuss.

The amateur, gradually habituated to the mute submission of the artist, from a consulting client has become a capricious and exacting master; he naturally exaggerates the force and accuracy of his taste and imposes it upon the architect, who is not able to defend his own. Tyrants can only exist where there is resignation. In the absence of a solid and rational system of instruction, the architect has been able to impose no restraint upon the amateur, unenlightened by free discussion and by rational explanations of the art; and in the absence of such a standard of criticism, the few sparks of independence which may be left to the architect are liable to be extinguished by the first opposition of caprice; thus we are all afloat upon a sea of doubt, without compass or rudder. Even if the architectural school of France had kept pace with the furthest advance of modern science, and were familiar with all the requirements of modern progress, it would, by the principle of its organization, be none the less a sort



THE PALACE OF THE TUILERIES.

PART OF THE GARDEN FRONT, IN THE DESIGN OF PHILIBERT DE L'ORME.

of academical gymnasium, in which a few select pupils, who have had patience to wait until they could contend for the grand prize, would arrive at distinction; but as for the mass of students, after having gone through a ten years' course of projects on impossible and impracticable architectural programmes, they would have before them only the prospect of a provincial practice or a limited field of private enterprise. Now our system does not prepare men to fulfil these functions. They leave the school with a few practical ideas and a great many prejudices, no knowledge of the local materials and means of our country, a profound disdain, such as only ignorance can feel, for those periods of art which are condemned by the school and which are difficult to study and understand, no idea of the conduct and administration of works, no method, and a mania for producing *monuments*, when their business simply is to build strongly, conveniently, and comfortably. Thus the assiduous pupil, who perhaps has had no opportunity of enjoying the distinction of being sent to Rome, very naturally shrinks from practising architecture in districts removed from the architectural centre; he prefers to occupy a secondary and irresponsible position at Paris, and to obtain precarious employment there, rather than to undertake the career of a provincial architect, which, without practical experience and a thorough education, would find him wanting in many essential respects. Hence the superabundance of artists at Paris, and the extreme paucity of them in the departments.

A school of architecture, however thorough it may be in teaching the principles of the art (and it is not thorough at all in Paris), is incomplete without such a course of instruction as shall develop among those destined to become architects a sense of personal responsibility, and, consequently, a knowledge of their duties, an authority firmly based upon a familiarity with all the trades to which an architect is obliged to have recourse in practice. We have a natural tendency, with our somewhat Southern temperament, to surrender to others our individual liberty. Many capable men in France, many men of genius, shrink at the idea of assuming the weight of personal responsibility. This national peculiarity gives us excellent soldiers, and was the foundation of the success of those religious establishments which, however, our habits, our legislation, our social state, have been strong enough to abolish forever. Let this same Southern blood in our veins encourage us to fight against this tendency of our

national character, — a tendency opposed to all intellectual progress, and, if allowed to get the upper hand, the certain precursor of national decline.

It would seem that a proper method of architectural education should not be confined to giving to the country every September *one* architect, officially declared capable, but should rather diffuse professional knowledge and the feeling for professional duties among *all* the pupils, whether destined to be architects to the state, or for general practice, and should give them an exact knowledge of the practical responsibilities they are to assume while maintaining the dignity of art.

What would be thought of a military school so organized as to form only marshals of France, leaving it to chance to supply the country with captains and lieutenants?

This is the reason why the remoter districts of France are deprived of capable architects and, consequently, of a respectable architecture. If we would have such an architecture, we must make architects so thoroughly and liberally versed in all the branches of professional knowledge as to be able to develop all the independence essential to the public and private interests of art. If it is recognized as a fact that the school is and ever will be powerless to form such men in the midst of society, and must necessarily cause questions of persons to override questions of principles in matters of art, rather than maintain such an establishment, let us shut it up and trust to private interests for the education of the architects necessary to a great country; this would at least have the advantage of liberating the public mind from the illusions which possess it, under the present system, of restoring to architectural education the perfect liberty which is alone consistent with healthy progress, of not supplying an asylum for patient mediocrity at the expense of the state, and of opening the whole range of architectural precedent to intelligent investigation and study, leaving to each student the responsibility of choice.

With this preface, in order that the real situation of the architect in the midst of this nineteenth century may be understood, let us now proceed to examine into the nature and extent of the knowledge requisite to the modern architect. This knowledge is of two sorts, the theoretical and the purely practical. The theoretical branch has been singularly extended within a century by the activity of archæo-

logical investigations and the discoveries which have resulted from them. If these discoveries only served to gratify curiosity, we should not treat of them here; but, as they have been made with the peculiarly analytical spirit of modern philosophy, they should have, and indeed do have, a marked influence over the arts, and over architecture in especial. Thus, no one can deny that geometry is the base of all architectural design, and archæological investigations have disclosed how this science has been alike applied to styles of architecture apparently very different in character; these investigations, as we shall presently take occasion to explain, have also brought to light the fact that all the architectures of nations belonging to the great history of the world are but various consequences deduced from the same dominating principle, the bond of brotherhood between all the styles.

The architect, then, should not only possess an extended and accurate knowledge of descriptive geometry, but he should also be sufficiently familiar with perspective to be able to present his design, in whole or in part, under all its aspects. It should be for him a practical science, so that when studying his geometrical projections he may be able to have constantly in mind the effect which will actually be produced to the eye by his projections, the heights of his various stories, the lay of the land, the slope of his roofs, the thickness of his walls, etc. It was the custom of the architects of the past, when they had prepared their ground plan, to make themselves familiar with all its possible developments in elevation by perspective studies of its various combinations, thus wisely avoiding the embarrassments of unexpected effects. If the practice of perspective studies is useful, the study of shadows is not less so; I do not refer to the conventional system of projecting shadows in architectural designs, but to the shadows really to be cast by the sun on the monument in its actual position. The architects of antiquity, of the Middle Ages, and of the Renaissance evidently took these effects into careful consideration; but it has been reserved for modern times to commit the solecism of constructing, on a northern exposure, façades, so covered with delicate details of slight projection that the sun can never be in a position to define them with shadows, the trouble and time expended in them being therefore thrown away. In previous Discourses we have indicated how carefully the Greeks took account of the light which would be shed upon their buildings, and how delicately they profited by the shadows. The mediæval architects were scarcely less observant of the

direction of the light in arranging the projections of their profiles and the reliefs of their sculpture. It must be admitted that this refinement of observation is not common in our days, and it rarely occurs to a modern architect when called upon to reproduce on a northern exposure a façade whose effect is striking only because exposed to the phenomena of a southern aspect, to reply, "The effect which pleases you cannot be obtained in this position without a modification of the design, as the orientation is different." On the contrary, it does not occur to him to say a word on the subject; the façade is built according to orders, and the client is surprised to find it a mere gray and monotonous mass, instead of sparkling with that brilliant play of light and shade which had seduced him in the original. So, with a certain amount of reason, indeed, he stigmatizes the architect as a bungler.

It is not enough for the architect, in designing, simply to accumulate the results of his sketches and drawings; he must use reason and common-sense. It is well for him carefully to study a building whose aspect has fascinated him, but it is better for him to examine into the *sources of his fascination;* for a building which is charming when situated at A, on a height, surrounded by trees or by low structures, and disposed towards the sun in a certain manner, would not be pleasing at B, in a low place, hemmed in by high edifices, and with a different exposure. The Greek temples and the mediæval churches were arranged with regard to the points of the compass; and if, in this, there was a religious motive, it must be admitted that the architects largely profited by the necessity. In regard to proportions, the observation of site and scale is still more important. In antiquity, public edifices were large as compared with ordinary houses; and, in planting them, especial care was taken to surround them with accessories which should give full value to their superior size. The same rule was observed in our mediæval cities; the houses were small, but every structure destined for religious or civil service assumed a considerable relative importance. Under these circumstances the monument preserved its own proportions, and its harmony was undisturbed by any rival surroundings. But in modern cities these conditions are not regarded. If a house is to be built, a site is chosen surrounded by buildings all of equal height; then the architect, with a frontage of one hundred and twenty feet to occupy on a street ninety feet wide, proposes to himself to imitate a certain lovely palace, with

a frontage of only sixty feet, situated on a little square, surrounded by low porticos, and surmounted by a single story; the bays of the palace are five feet wide, and his must be extended to ten. But, undismayed by these inconsistencies, his sketches are brought out, and, with their aid, the work of *inspiration* begins; that is to say, he so tortures an unhappy model, which was charming in the original, as to produce a work without character or name. We should therefore copy and collect materials without stint, not to cut them up or stitch them together at hazard, but to fill our minds with the methods adopted by the old masters to produce a certain effect in a given locality and under particular conditions.

All that has been written since and perhaps before Vitruvius about proportions may be summed up in this: there were certain proportions conventionally accepted in antiquity as good, and the best we can do is to accept them again to-day. But what is the antiquity alluded to? Is it that of the Athenians? It needs but a glance to see that the proportions accepted among them, as, for example, those of the orders, were independent of dimensions; but I cannot find any indications that these fixed proportions of the orders were ever rigorously followed by the Hellenic people during the century and a half of their greatest glory. These artists seem to me rather to have established an *harmonic system*, not a *formula*, such as the Romans, like true engineers, set up at a later period.

But, going back still further, we can see in the monuments of ancient Egypt also the influence of an harmonic method, but nowhere any evidence that the artists of Thebes subjected themselves to any conventional formula of proportions; I confess I should be very sorry to have it proved to me that any artistic people were ever under the dominion of formulas; it would cause them to fall very much in my esteem, for where would be the merit of the artist or the art controlled by any arbitrary and artificial standard? The Italian artists of the epoch of the Renaissance undertook, in their books at least, to establish positive proportions for the orders, but for the orders alone; in the use of these orders, and in the general combinations of their designs, we find them free to follow the dictates of their own taste and the requirements of reason and necessity.

There doubtless existed in the Middle Ages, and probably in antiquity, certain methods of establishing proportion in architecture. We have very little information on this subject; traditions which

have fallen into oblivion, and an official education, which amounts to nothing at all, have caused us to lose the thread which guided the architects of old through that labyrinth of mysterious knowledge so often explored by the craft spirit of our ancestors. For the last two centuries it has been the custom to disregard as unworthy of notice the methods employed by our predecessors in the art of architecture, by means of which they were enabled to produce their great masterpieces. Ignorance has found its revenge in disdain; but, in this nineteenth century, to disdain is not to prove. For geometrical methods, profoundly reasoned and consecrated by long experience, certain empirical formulas have been substituted, of which no more satisfactory reason or explanation can be given, than that they have been transmitted to us at second or third hand. The modest *master-workmen* of the Middle Ages, who are superciliously looked down upon now by the authorities, did not pretend, as we do, to *imitate* antique art; but there is reason to suspect that they not only understood, but practised the principles of antique art much better than we do to-day.

I shall undertake to prove this; but in order to do so, as the subject is worth the trouble, I hope I shall be pardoned if I find it necessary to refer my readers to a somewhat distant antiquity.

"There is good reason to conjecture," said Plutarch, in his "Treatise concerning Isis and Osiris," "that the Egyptians were accustomed to compare the nature of the universe to the triangle, as the most beautiful of all figures. Plato also, in his work on the Republic, made use of this figure when composing what he called a nuptial diagram; the triangle to which he referred was a right-angled triangle with the following properties: *the side, which made the right angle, had three parts, the base four, and the hypothenuse five,* the latter representing the combined force of the two others; the perpendicular he compared to the male, the base to the female, and the hypothenuse to their joint offspring." * Now this demonstration is of very great importance, as I shall presently take occasion to show.

The obscurity into which we have been plunged by the irrational but absolute maxims of the age of Louis XIV. has lately received considerable light from the researches of certain learned Germans

* It is evident that a rectangular triangle with a base of 4 parts, the square of which is 16, and a side of 3 parts, the square of which is 9, must have an hypothenuse of 5 parts, whose square is 25 : $16 + 9 = 25$.

and from the writings of a very limited number of Frenchmen. M. Henszlmann, in a work entiled *Théorie des proportions appliquées dans l'Architecture,* has prepared the way for discoveries of undoubted value; and although, with the monuments of the past before us, we cannot adopt his system as a whole, it is certain that he has done much to clear the path for those who may give to his principles a more rational development. M. Aurès, an engineer-in-chief of roads and bridges, in his *Nouvelle théorie déduite du texte même de Vitruve,* has lately * published a very curious statement regarding the relative proportions of the orders. This author has established, for example, in an incontestable manner, that the Greeks took their module or unit of admeasurement from a diameter of the shaft near its middle instead of from the diameter of the base, according to the custom of modern times. He thus demonstrates mathematically the justice of the measures given by Vitruvius. But this is not the place to enter into an examination of such demonstrations. It is useful to know the proportions given by the ancients to their orders, but certainly it would be much more useful to discover the *generative principles* of these proportions, not only as used in the edifices of antiquity and the Middle Ages, but even, to a certain extent, in those of the Renaissance, although, in the latter epoch, the clew which led to those pure traditions was lost, and architecture began to be abandoned to the vagaries of fancy.

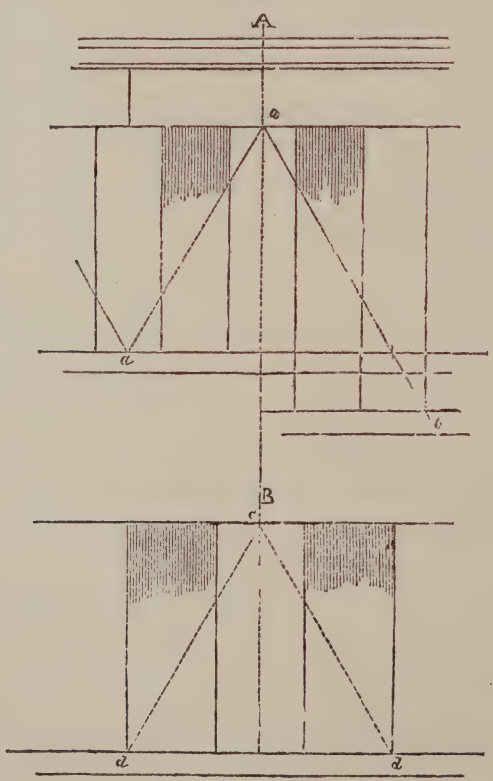
It is a mistake to suppose that architectural proportions are the result of instinct. If absolute rules and geometrical principles, in application, gratify *the sentiment of the eye,* it is because sight is a sense, like hearing, which can never suffer a discord without being offended, however little culture the ear may have received in music. I know not why a discord offends my ear, but he who is skilled in counterpoint can demonstrate to me mathematically that my ear *ought* to be shocked. It would therefore be strange indeed if architecture, the daughter of geometry, could not geometrically demonstrate how it happens that the eye is offended by a fault of proportions in a building; but I cannot regard the empirical methods of Vignola and his successors as explaining the phenomenon. We must consequently examine this subject from a much higher and, above all, from a much more logical standpoint.

We have seen, from the text of Plutarch just quoted, that, accord-

* Nismes, 1862.

ing to the ideas of the Egyptians, who were excellent geometers, the triangle is a perfect figure. But the equilateral triangle is that which, of all the rest, most satisfies the eye, on account of its peculiar properties: its three equal angles, its three equal sides, its division of the circumference of the circle into three equal parts or into the six equal parts of the inscribed hexagon. There is no geometrical figure which conveys greater satisfaction to the mind, none which better fulfils those conditions of stability and regularity which appeal most agreeably to the eye and mind. Now it is easy to see that the Egyptians employed the equilateral triangle to obtain more agreeable proportions in the more important members of their architecture. Thus, if, according to the usual custom in their oldest buildings, they supported their lintels upon an order of pillars whose voids were equal to its solids, the proportions of the heights of these pil-

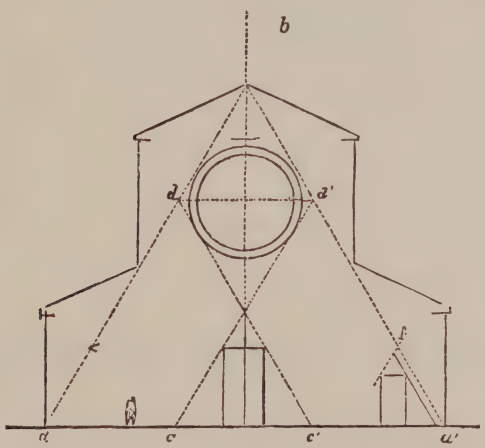
Fig. 82.



lars in relation to their width and to the intercolumniations were often obtained by a series of equilateral triangles, as represented in Fig.

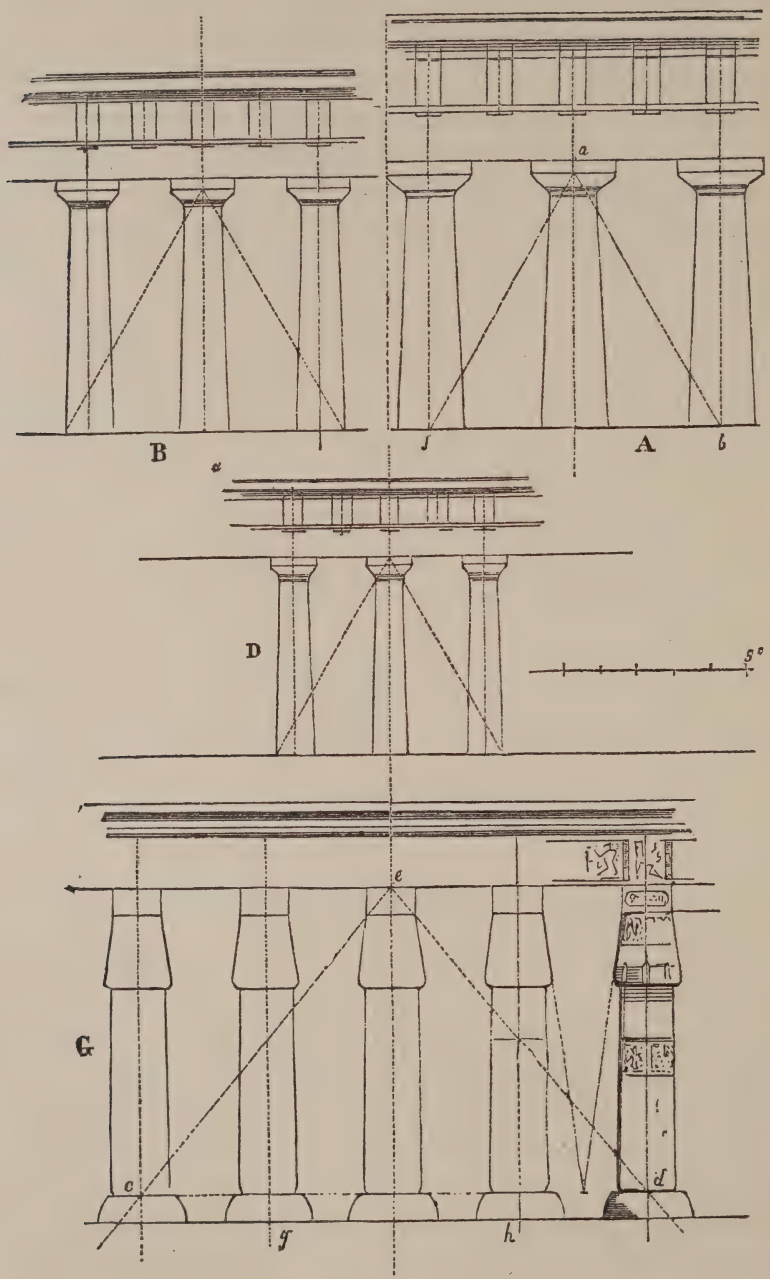
82, A; for these pillars were so arranged, either that the axis of each of them intersected the apex of one of the triangles, as exhibited at *a a*, or that, if a more slender proportion was desired, three entire pillars stood upon the base of the triangle, in the manner indicated at *b*, thus, in either case, satisfying an instinct of the eye which requires that the weight carried and the thing which carries it shall not be outside the angles of an equilateral triangle. If this principle is disregarded, as indicated in the diagram B, the conditions of good proportions are lost; the eye being disturbed by a want of apparent stability, which can only be obtained when the two feet of the triangle *d d'*, at equal distances from the axis *c*, are planted in solid points. In like manner, satisfactory general proportions may be ob-

Fig. 83.



tained for the façade of a basilica, that is to say, a building composed of a nave, flanked by two aisles, one on either side, by inscribing it in an equilateral triangle in the manner shown in Fig. 83; and the apertures pierced in this façade will be well proportioned to the principal mass if they also are inscribed in equilateral triangles, as at *a c' d*, *c d' a'*, etc., in such a manner that the lines composing these triangles shall frame in and enclose each opening. The desire of the eye, which instinctively traces these lines, must in this case, as in all others, coincide in its requirements with the rules of stability. The Greeks were not ignorant of this simple principle. Thus (Fig. 84), in the order of the temple of Corinth A, the apex of the equilateral triangle is at *a*, in the axis of one of the columns under the abacus of its capital; while the two other angles *b f* are in the axes of the

Fig. 84.



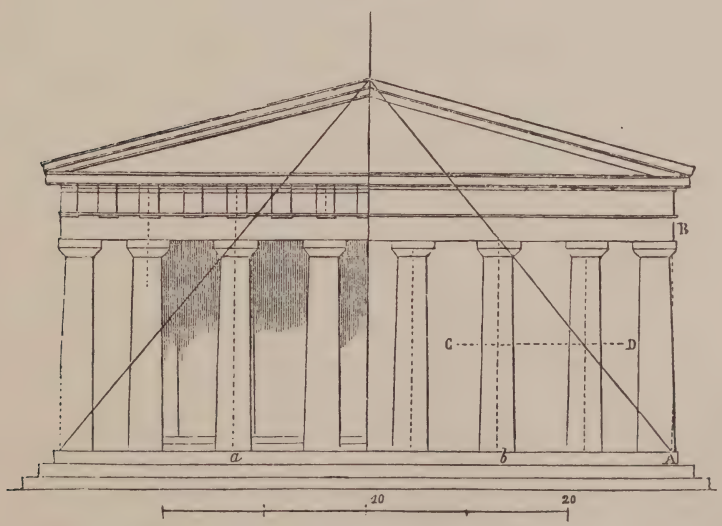
columns on either side, at their bases. The Dorians, desiring to obtain a more slender proportion, as in the order of the temple of Concord at Agrigentum, B, caused the lower angles of the triangle

to meet the bases of the lateral shafts, not in their axes, but at their outer edges, so that the bases of the three columns were entirely included in the base of the triangle; or, again, if they proposed to obtain wider intercolumniations, as in the order of the temple of Egina, D, the apex of the triangle intersected the axis of the central column on the upper instead of the lower edge of its abacus.

But, in some instances, the pyramid with a square base, whose vertical section parallel with one of the sides of the base gives an equilateral triangle, was also used as a generator of proportions. The diagonal section of this pyramid gives the triangle *c d e*, represented in G, which was applied to some of the façades of the ancient monuments of Egypt, and, notably, to the portico of the temple of Khons at Karnac (20th dynasty), given in the figure.

Now whether the inclination of the lines of the diagonal section of this pyramid, as in *c d e*, is more agreeable to the eye, because representing the principal outline of such a pyramid in actual erection, or whether the equilateral triangle, from which this pyramid is engendered, is too acute at its apex to govern the proportions of a wide façade, — however this may be, we shall find that the application of the triangle *c d e* to the Parthenon, for example, will develop some

Fig. 85.



curious results. By examining Fig. 85 we shall discover that, while the apex of the triangle is at the summit of the pediment of the Parthenon, the two lower angles A A are exactly at the points where

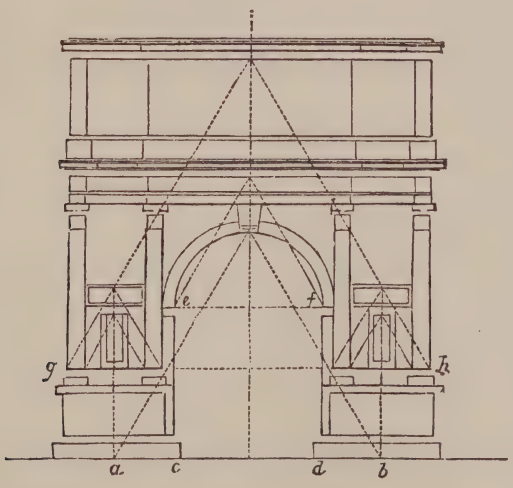
plumb-lines, dropped from the middle of the external lines of the corner shafts, touch the pavement of the portico; also, that the inclined sides of this triangle, where they intersect the lower edge of the architrave, give the axes of the third columns from either corner of the façade, and that, by dividing the intermediate space *a b* between those two columns into three equal parts, and by extending one of these divisions outside the points *a* and *b* respectively, we obtain the axes of the six central columns; we further learn that the horizontal line C D, drawn through the points where the inclined sides of the pyramid intersect the axes of the second columns, gives the height at which the unit of admeasurement, the module of the whole edifice, is taken in the diameter of the shaft.

In every structure built on the system of posts and lintels, the critical eye is not satisfied with the consciousness of the simple rigidity of these posts and their strength relatively to the work they have to do; but instinctively requires a certain mutual solidarity among these posts, and that the inclined lines of the pyramidal section, which is unconsciously applied as the type and standard of stability, shall encounter at their lower extremities solid points of support; if this condition is not fulfilled, the *expression* of perfect solidity is wanting. Thus, in the façade G of Fig. 84, the artist, desiring to obtain a compact yet slender order of columns, felt that it was not possible to obtain this result by the generative means of the equilateral triangle, whether its lower angles touched the centres or even the outer edges of the bases of the two columns *g* and *h* on either side of the middle column. So he tried the wider spread of the diagonal section *c d e* of the equilateral pyramid, thus fixing the axes of the second columns from the middle at the points *c* and *d*, and regulating the other intercolumniations accordingly. As the eye, in its instinctive recognition of the laws of statics, assumes a certain figure with inclined sides as typical of stability, it is natural, when it would seek for the proper expression of this quality in a building, to require that the building shall be disposed in accordance with this type, which should be especially suggested by certain well-marked points. Thus, in inscribing the entire façade of the Parthenon in a triangle whose inclined sides give so complete an idea of stability, and in regulating the intercolumniation by the two points where these inclined lines intersect the architrave, the Athenians admirably satisfied this desire of the eye, and met all

those conditions of ideal stability so essential in monumental architecture.

But of all architectural structures, those which are isolated, and have not so much a character of utility as of absolute art, such as the triumphal arches, of which the Romans were so prodigal, should most emphatically express, in their lines and masses, a perfect harmony, the result of an attentive study of proportions. In such cases, in fact, the mutual relations of heights and widths and the dimensions of apertures were not dictated by practical necessities; the programme gave perfect liberty to the artist, and it was his own fault if he did not avail himself of it to obtain the most perfect ideal of monumental art. We are familiar with a great many triumphal arches raised by Roman vanity; and if many of them recommend themselves by a certain grandeur of aspect, by the majesty of their masses, or by the beauty of their details, very few are completely satisfactory in their proportions. Thus the arch of Trajan, rebuilt under Constantine, is indecisive and unstudied in this respect; that of Septimius Severus is far too heavy; that of Orange has a detestable outline, with its clumsy mass supported on slender piers. But the arch of Titus at Rome, small as it is, is very happy in its composition,

Fig. 86.



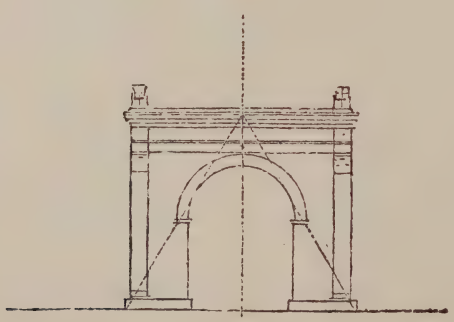
and fully satisfies the eye. Let us therefore endeavor to ascertain on what principle its proportions were obtained (Fig. 86).

Here again we find that the generative principle by which the lines were disposed was the equilateral triangle. The key of the arch is

at the apex of an equilateral triangle, and the axes of the piers on either side are perpendiculars elevated from the two extremities of its base *a b*. The opening *c d* of the archway up to the line *e f* of its springing is a perfect square, and the apex of an equilateral triangle, constructed on the line *e f* as a base, fixes the lower line of the main cornice. The lower line of the attic cornice passes through the apex of another equilateral triangle, constructed on the line *g h*, which occupies the entire width of the monument, and which coincides with the upper lines of the bases of the engaged columns; the latter, as they are profiled boldly on the angles of the structure, afford very marked boundary lines for the whole mass. The square niche, placed between the columns on the face of each pier, has its lintel on the apex of an equilateral triangle, whose base is the intercolumniation. The tablet above this niche has its upper line on the apex of an equilateral triangle, whose base occupies the whole width of the pier as defined by the columns, or, in other words, at the intersection of the axis of the pier with the inclined side of the largest triangle whose base is at *g h*.

Now it can hardly be maintained that these geometrical combinations are mere accidental coincidences; and if it is said that the architect of the arch of Titus obtained these combinations by a delicate feeling for proportions, without having made use of the process we have just explained, it must be admitted that there was a singular agreement between his instinct and the geometrical analysis of his

Fig. 87.



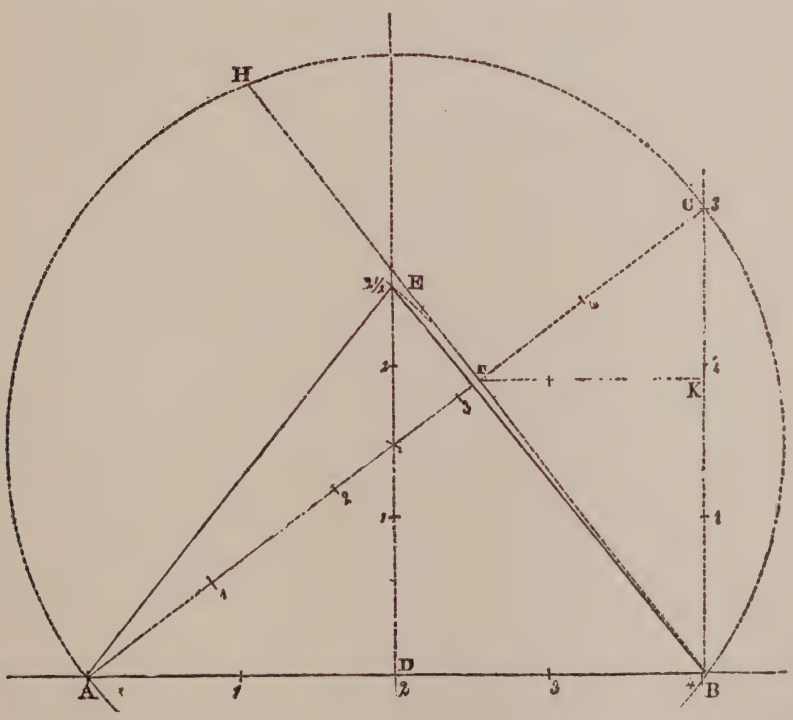
work. There is in Provence, near Marseilles, at St. Chaumas, a little Roman arch built on a bridge (Fig. 87). This structure, which is of a much better style of art than even the monuments of imperial Rome, and is distinguished for excellent proportions, is entirely inscribed in

an equilateral triangle, and the arch itself is tangent to the two sides of this triangle, according to the rule indicated in Fig. 83. Chance cannot give such results.

If we apply this same geometrical standard to any monument of the Middle Ages, of the Renaissance, or of our own time, we shall find that the proportions of the monument are nearer perfection the more closely the conditions of this standard or type are observed. The façade of Notre Dame of Paris, for example, is inscribed in an equilateral triangle, whose base is the distance between the axes of the two outer buttresses, and whose apex gives the height of the cornice under the great open gallery.

Let us now return to the triangle of Plutarch. M. Daniel Ramée, in his *Histoire générale de l'architecture*, and M. Jomard, in his

Fig. 88.



Description de l'Égypte, abundantly prove that the great Pyramid of Cheops at Gizeh is designed upon this form. Let us examine their demonstration.

If we divide the Plutarchian, or rather the Pythagorean triangle A B C, whose sides are in the ratio of 3, 4, and 5, into two smaller or similar triangles by letting fall a perpendicular from the apex B upon the hypothenuse at F, and if from the point F, in like manner, we drop perpendiculars F K and F L upon the hypothenuses of the triangles thus formed, we shall have, besides the three original lines A B, B C, and A C, three other lines F B, F K, and F L, and the two segments A F and F C of the line A C. The well-known properties of this triangle, deduced from the famous Pythagorean proposition, — namely, that each leg is a mean proportional between the hypothenuse and the segment adjacent to the leg, and that a perpendicular thus let fall is a fourth proportional to the three sides of the triangle, — give us at once the values of these lines. Thus, if in the original triangle B C = 300, A B = 400, A C = 500, we have the following results: —

$$\text{F C} : \text{B C} = \text{B C} : \text{A C}, \text{ or } \text{F C} = \frac{300 \times 300}{500} = 180$$

$$\text{A F} : \text{A B} = \text{A B} : \text{A C}, \text{ or } \text{A F} = \frac{400 \times 400}{500} = 320$$

$$\text{F B} : \text{B C} = \text{A B} : \text{A C}, \text{ or } \text{F B} = \frac{300 \times 400}{500} = 240$$

$$\text{F K} : \text{F B} = \text{F C} : \text{B C}, \text{ or } \text{F K} = \frac{240 \times 180}{300} = 144$$

$$\text{F L} : \text{F B} = \text{A F} : \text{A B}, \text{ or } \text{F L} = \frac{240 \times 320}{400} = 192$$

In like manner, if we circumscribe this triangle with a circle struck from the middle point O of the hypothenuse, with a radius A O = 250, we shall have D O = 150, or half the height of the leg B C; the chord B H = 480, etc. If we take 12 instead of 100 for our unit, we have for the sides of the triangle 36, 48, and 60, and for A O and D O, 30 and 18 respectively, etc. Thus, by means of this figure, we obtain decimal and duodecimal divisions, which are simple and convenient in their application to a system of constructive proportions.

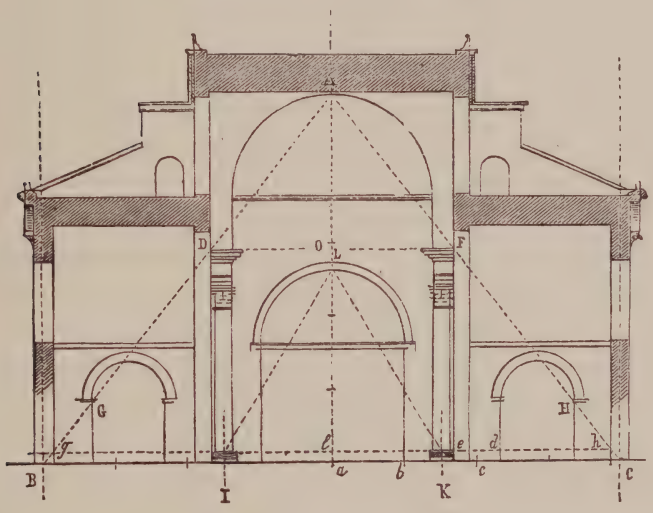
If now we set off on the vertical line D O, prolonged, the distance D E = A O, and draw E A and E B, these lines will exactly represent the geometrical elevation of the great Pyramid of Cheops, A B being the length of one side, D E the vertical height, and A E the length of each inclined face on a vertical section parallel with one of the sides of the base. Now this line A E or E B is equal to A F, the

segment of the hypothenuse A C of the triangle of Plutarch cut off by the perpendicular B F.*

Whether the architects of antiquity did or did not avail themselves of this figure, it is certain, as we shall presently see, that the mediæval masters made it the generative principle of some of their great buildings.

Let us apply to the transverse section of the basilica of Constantine at Rome (Fig. 89) the triangle A B E in Fig. 88. We shall see that the legs A B and A C, at the points B and C, define the positions of the centre lines of the outer walls; that at the apex A they give the

Fig. 89.



extreme height of the main vault; and that by means of their intersections D and F with the longitudinal nave walls, they fix the extreme height of the entablature of the grand order with which the hall is decorated. The sides A B and A C give also the points G and H, where the arches in the transverse walls of the aisles spring. An equilateral triangle I K L, whose base extends between the axes of the two opposite columns of the nave above their bases, gives, with its apex L, the extreme height of the tribune arch. Taking one of the four equal divisions *a c* of the base of the main triangle, and dividing it in halves at *b*, we obtain the positions of the piers

* This whole demonstration has been remodelled and simplified in the translation. It is worthy of remark, that the line A E or E B is not exactly equal to the segment A F, as stated, but that they are in the ratio of 320 and 320.156 +. The coincidence pointed out in the text, therefore, does not result from a geometrical relation, but is merely accidental. — TRANSL.

of the tribune arch, and the dividing point *c* gives the axis of the pier *e d*. Observe, also, that the width of the nave, at the level D O F, is to the height A O on the centre line as the width of the whole structure, at the level *g l h*, is to the height A *l* on the centre line. Here, as in the Parthenon and in the arch of Titus, the eye, finding that the position of the triangle, which is the ideal of stability, is defined by the well-marked architectural points A, D, G, and *g*, on the one side, and A, F, H, and *h*, on the other, is instinctively satisfied with the proportions. One of the conditions to be carefully observed in obtaining good proportions for an architectural composition, is to avoid equal successive dimensions whether in lines or surfaces. The artist, therefore, in this case has been cautious not to divide the side *g* A into two equal parts; the actual division he made is into the two unequal parts *g* D and D A, which are to each other as 29 to 21. The Egyptian triangle, as a generative medium, its base being to its height as 4 to $2\frac{1}{2}$, possesses the advantage of encouraging these contrasts between widths and heights, without which there are no harmonious relations of parts. In fact, it is mainly by contrasts that the eye is enabled to comprehend dimensions. Thus, a nave appears high, when it is narrow in proportion to its height; and wide, when it is low in proportion to its width. But when you have obtained a condition of perfect relations between the main heights and widths, you have the key to the proportions of your whole structure, and such a key seems to have been found in antiquity by the application of the Egyptian triangle. Unfortunately, so few antique buildings are entire in all their parts, that it is difficult to apply this method with certainty to most of them. But, from the moment when mediæval art passed from the cloisters into the hands of the lay architects, there is ample evidence that the principle was put into general practice. It is impossible to say whether the principles which these architects seem to have guarded as a mysterious and exclusive science were obtained from their familiarity with antique lore, now forgotten, or from traditions whose purity had been carefully preserved; but we can always find, in their system of architectural proportions, evidences of the observance of certain laws probably derived from antiquity, although they never dreamed of imitating the forms of antique architecture, and although their system of construction was, as I have elsewhere stated, fundamentally different from those of the Greeks and Romans.

Fig. 91.

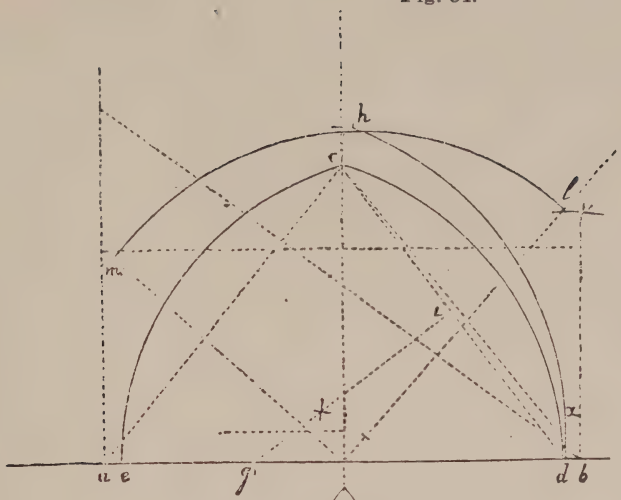
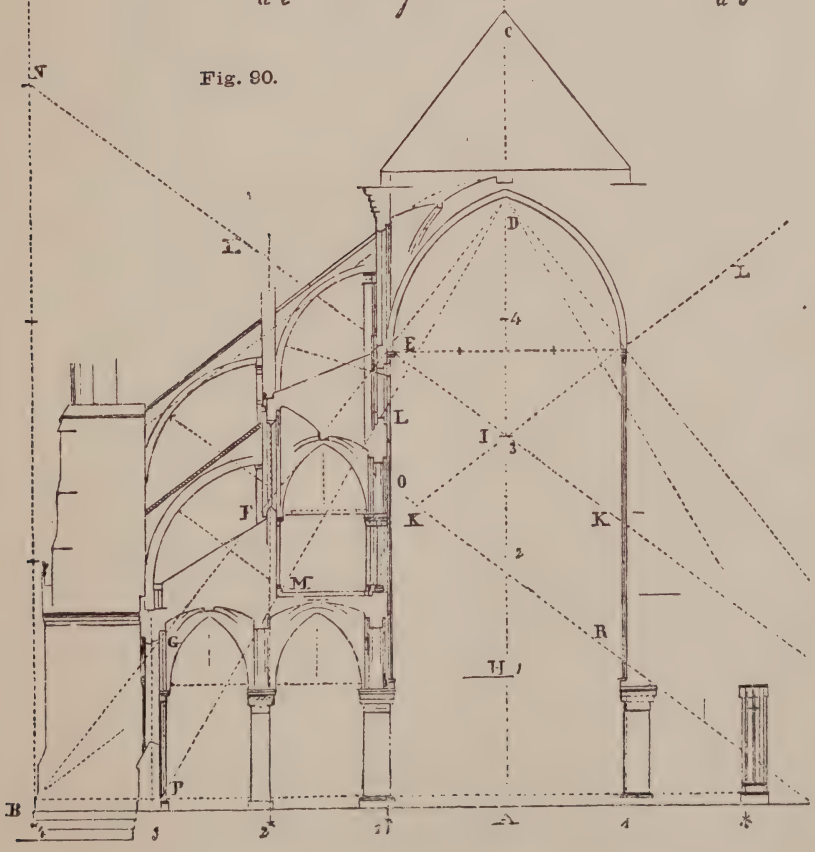


Fig. 90.



TRANSVERSE SECTION OF THE CATHEDRAL OF PARIS.

Let us select the Cathedral of Paris, which is one of the most ancient of the buildings belonging to the truly lay school of France, a specimen of the real Gothic style of the twelfth century. Fig. 90 presents a transverse section of its nave and four aisles. The total width of the structure being known, let A B represent a half of this width, divided into four equal parts. Starting from the axis A and elevating perpendiculars on each of these four divisions, the first from the centre coincides with the face of the nave wall above the columns; the second, with the inner face of the columns separating the first from the second aisle; the third, with the axis of the outer wall; and the fourth, with the outermost of the successive offsets of the buttresses on a level with the pavement of the church. Assuming the upper level of the bases of the nave piers as a base of operations, at the point A we elevate the perpendicular A C, on which we space off five of the equal divisions of the base line; the fifth division at E gives the height of the Egyptian triangle and also the height of the main vault. The line B D, uniting the extremity of the perpendicular D with that of the base A B at B, forms the inclined side of the triangle, whose height is to its entire base as 5 to 8 or $2\frac{1}{2}$ to 4. The intersection of this inclined line B D with the first perpendicular raised on the base A B gives at E the springing point of the main vault; its intersection with the second perpendicular at F gives the level of the window-sills of the gallery, and with the third perpendicular at G the apex of the windows of the outer aisle. The first division H of the perpendicular A D gives the level of the springing of the lower arches of the navé walls, whose centre points are stilted about $12\frac{1}{2}$ inches above the capitals of the piers. The third division I gives the level of the keys of the gallery vaults. The section K I of the hypothenuse of the triangle of Plutarch (see the demonstration of Fig. 88) gives the inclination of the upper lines of all the flying buttresses, whose centres are in the perpendiculars 1 and 2 raised upon the base. If now we take A D as the height of an equilateral triangle, we shall discover that the side P D of this triangle, in its intersections with the skeleton lines of the structure as already established, gives at L the lower point of the round triforium windows under the clerestory, at M the floor of the gallery, and at P the interior face of the outer wall. In fine, a line R O, parallel with the hypothenuse L′ K′, gives, in passing by the level of the keys of the gallery vaults, the inclination of the original pyramidal roofs of these vaults. As

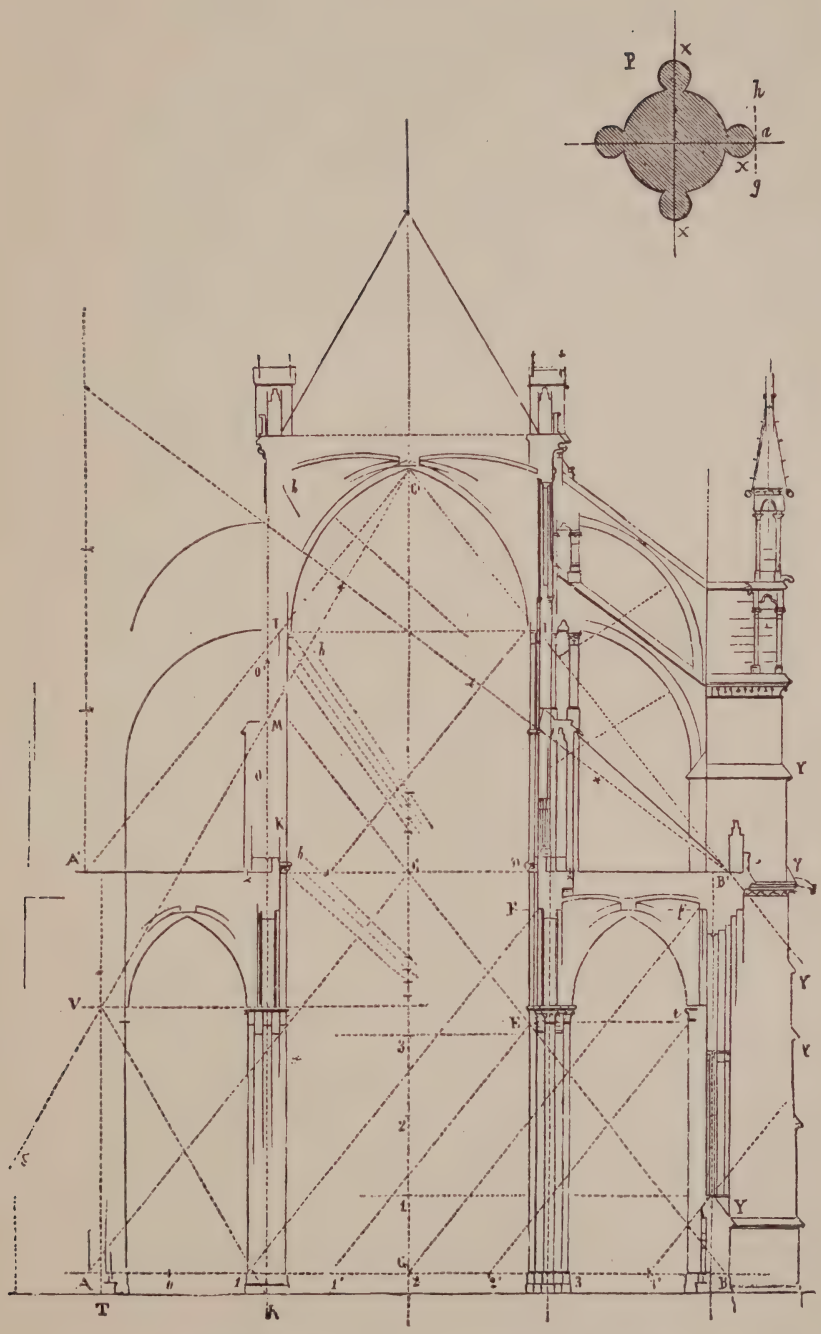
for the gable-ends and consequently the roofs of the nave, they coincide exactly with a triangle similar to that of which a half is given in A B D. Now if these are mere accidental coincidences, it must be admitted that chance plays very strange tricks.

To trace the main vaults (see Fig. 91) : *a b c* being the Egyptian triangle, we measure off on its base line from *a* to *e* and from *b* to *d* the thickness of the archstones of the pointed arch *e c d*; uniting the point *d* of the base with the apex *c*, and elevating a perpendicular *i g* on the middle of this line, the intersection of this perpendicular with the base line at *g* gives the centre of the principal arch, of which the arc *c d* is the under surface (*intrados*). The arc *m l* represents half of the diagonal arch, and the arc *x h* half of the intermediate transverse arch.

Let us now submit the transverse section of the nave and aisles of the cathedral of Amiens to a similar analysis. It has been said that Michael Angelo, in conceiving the cupola of St. Peter's at Rome, professed to elevate the Pantheon on the basilica of Constantine. I do not know whether he ever had such an idea; but certainly the placing of one building on top of another would be no mark of genius; the genius would be exhibited in maintaining happy proportions in a structure whose height should be double the width of another structure, already recognized as a model of proportions. The architect of Notre Dame of Amiens has met these conditions with rare intelligence. All who enter this cathedral are struck with the grandeur of the general effect and the perfection of the relative proportions. In the midst of this vast enclosure the eye is entirely content; it comprehends without effort a work conceived in a single inspiration by a superior mind. Can this harmony be the result of a series of blind experiments, or the effect of the *successful* study of the various parts relatively to the whole? I do not believe in chance, especially as regards architecture, nor yet in *successful* studies, that is to say, the results of pure instinct. If a work is good, it is because it is based on a good principle, intelligently and loyally followed.

The transverse section of the cathedral of Amiens (Fig. 92) presents a harmony of proportions obtained by the superimposition of two Egyptian triangles. The base A B of the lower triangle A B C reposes, according to what seems to have been the usual custom, upon the bases of the nave piers, and extends between the outer faces of the exterior walls of the aisles; its summit C defines the level of

Fig. 92.



TRANSVERSE SECTION OF THE CATHEDRAL OF AMIENS.

the lowest member of the decorated string-course D, which extends uninterrupted around the whole interior of the edifice. The base A B, divided into four parts, gives, at the points 1 and 3, the outer faces of the grand piers; that is to say, referring to the separate diagram P of the pier, the tangent *g h* gives the point *a*. If we divide each of these four divisions of the base into halves at the points 0, 1′, 2′, 3′, the subdivision 1′, by means of a line drawn from it parallel with the side A C, fixes, by its intersection E with the side B C, the level of the astragal of the capitals of the engaged columns, represented in the plan of the pier at X X X. The second parallel to A C, drawn from the point 1, gives the keys of the nave arches. The parallel from the point 3′ defines the inner slope of the sills of the aisle windows. The parallel from the point 2 gives, by its intersection with a horizontal line drawn from the point F, the soffite of the key of the aisle vaults; while the parallel drawn from the point 2′ gives, by its intersection with a horizontal line drawn from the point E, the inner face of the engaged piers of the aisle, — the thickness of the pier, given in detail at P, having been dictated by constructional necessity. The vertical G C being divided into five parts, each of these divisions is equal to one of the eight into which the base is divided. The first division 1 gives the level of the aisle window-sills; and 3, the astragal of the capital of the central cylindrical part of the piers, detailed at P, this being lower than the astragals of the engaged columns X, before referred to.

Upon the level A′ B′, which terminates the first order, or that of the aisles, the architect has repeated his lower base A B, and marked its extremities by the inner jambs of the doorways which pass through the buttresses. Upon this new base A′ B′ he has erected a second Egyptian triangle A′ B′ C′. Its sides A′ C′ and B′ C′, in intersecting the inner face K of the clerestory walls, gave him, at the point I, the height of the springing of the main vaulting arches, of which the point C′ marks the apex. In order to trace these arches he proceeded as in Notre Dame of Paris. The centres 0 0 of the flying buttresses are in the prolongation of the axis R of the main piers. C′ being assumed as the apex of an equilateral triangle, of which one side is C′ S, the intersection of this line with the axis R of the piers gave the architect, at M, the height of the upper passage of the triforium; and its intersection with the axis T of the outer aisle wall at V defined the height of the springing of the aisle vaults. The line

V R, also the side of an equilateral triangle, designated, where it encountered the axis R, the level of the pavement of the church, and, consequently, by the difference between this level and that of the first base line A B, the height of the bases. The roof also follows the lines of an equilateral triangle. The length of the hypothenuse B′ N equals the height of the nave from the point G to the apex C′. All the mouldings traced at the point *b* are so disposed as to be perfectly developed when seen from the point B. We shall take occasion to refer again to this principle. All the inclined lines of the flying buttresses are parallel with the hypothenuse B′ N. The Egyptian triangle was so omnipresent in the generation of all the details, that even the slopes of all the offsets Y of the buttresses follow the inclinations A C or B C, as if the artist had drawn these slopes by simply running his bevelled square along a general base line.

Many of the details of the application of this system have doubtless escaped us in tracing this general section. Even the most insignificant divisions were probably obtained by means of the intersections of vertical lines with the parallels or sides of the triangles. But if the principle is not contested, and we are asked why these geometrical methods give satisfactory proportions, we can only say that it is because they establish a constant harmonious relation between the heights and widths.

We must admit, with the Egyptians, that for some reason or other the triangle engendered by the sides 4, 3, and 5 supplies us with a perfect standard of proportions, and that the relation of $2\frac{1}{2}$ or 5 in height with a width of 4 or 8 respectively is gratifying to the eye. If it is difficult to explain *why* a sensation of the eye is pleasing or the reverse, we can at least define the sensation. As has already been intimated, the eye receives the idea of dimensions only relatively; that is, its conception of length, width, and surface is obtained by mutual contrasts and comparisons between these. Now the relations of 1 to 2, of 2 to 4, and the like, do not supply us with contrasts or dissimilarities, but with mere repetitions of similarities. When a method of proportions forces, as it were, the draughtsman to make divisions which are to each other as 5 to 8, for example, 5 being neither the half, the third, nor the quarter of 8, but having with 8 certain relations which the eye cannot define, he is instinctively using the principle of contrasts, which is the first law of the

theory of proportions. As the eye is the organ most frequently used, and as it acts without the aid of reason, it becomes a very delicate instrument, even to those to whom it has never occurred to try to understand why proportions are good or bad. Thus, whenever the eye detects a repetition of measures in an edifice, whenever it sees that the openings in a wall are equal to the piers, or that a certain height is similar to a certain other height, it conveys to the mind a consciousness, not of proportions, but of similitudes; it is preoccupied by the equalities which it sees; it soon becomes fatigued by instinctively calculating the accuracy of the repetitions. Although it is very difficult exactly to appreciate with the eye the fact, for example, that the great decorated string-course divides into two equal parts the height of the nave of Amiens, yet I have often heard persons, strangers to art, criticise and complain of this equal horizontal division; and this feature is, in fact, a defect of proportions in an edifice otherwise well conceived. The architect, in going through the two distinct operations to which we have referred, as they are tied together, as it were, by the extension of the lines of his equilateral triangle through the level line of demarcation, believed that this line would not betray the double character of his design; but this fact is so much the more apparent, even to the most uneducated eye, in that all the other parts of the edifice present happy proportions obtained by contrasts. But, observe, these contrasts have an order, a unity; it is not sufficient to establish differences of heights and widths in the same building capriciously; these differences must be based on some general and well-understood system, and the method of obtaining proportional contrasts by triangles is good, because it furnishes certain points in the composition which instinctively define to the eye the existence of some general system of design, although the method itself may not be understood. There can be no correct proportions without unity, and no unity without plurality; and plurality implies, not *similarities*, but *differences*.

The Greeks (for we must always have recourse to them when we would receive light on any question touching the arts) had two schools of philosophy as well as two schools of art, — the Dorian or Pythagorean school and the Ionian school. Of these, the former taught absolute unity, excluding all difference, *everything* was *one;* the latter, purely empirical or experimental, admitted, on the contrary, infinite divisibility, difference without identity, appearance with-

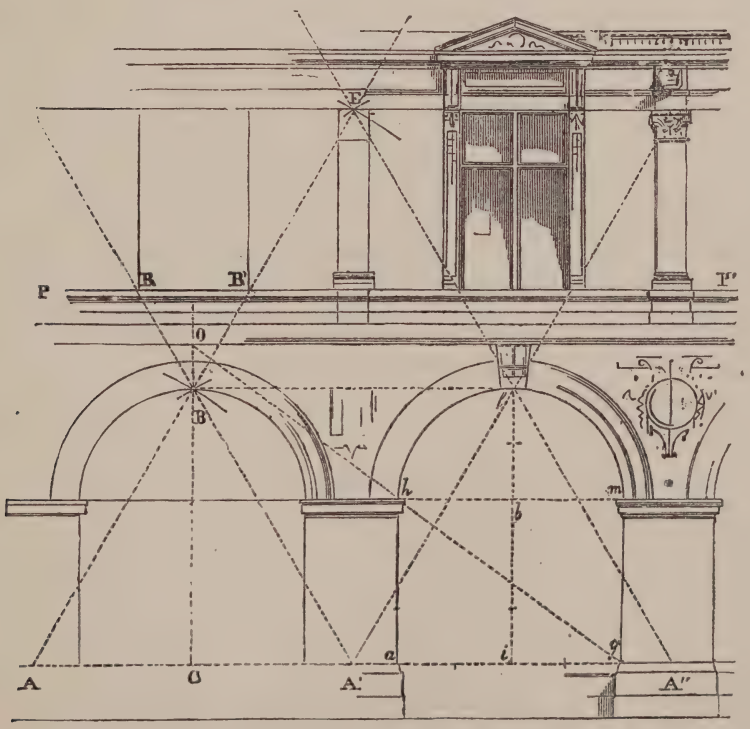
out an omnipresent reason, movement without unity of motive. Out of these two philosophical systems, one expressing itself in theism, the other in pantheism, the Athenians constructed a system applicable to the arts; taking from the Dorians the principle of unity and from the Ionians empiricism, they submitted architecture to an absolute method, a generative unity, yet allowed the artist all his individuality, all that liberty which leads to difference and variety. Admirable synthesis, which inspired not only the masterpieces of Greek art, but of that almost unknown and kindred epoch of mediæval art over which the modern schools would fain throw a thick veil, as if to separate it from its great antitype and conceal it from the analytical study of the architect!

Strictly speaking, however, neither in Greek architecture nor in the purest mediæval do we find this principle of empiricism expressed in the idea of manifestation without principle, but rather a simultaneous unity and plurality, not only in the general proportions, but in the minutest details. In both architectures the principle of creation was one, but the artist was a creator who moved freely within the limits of this principle. Thus, by pure reason, the Greeks recognized a great law of nature, which modern science has defined, as it were, mathematically.

It has been demonstrated that a *unity* of principle is at the base of all organic nature. From the serpent to the man this principle is rigorously followed, and it is from the very plurality of its applications that its unity is recognized. When we consider that in every individual creature the development of one member of the organic whole is made at the expense of the others, that these individuals differ one from the other only by the different degrees of development of the various members of the same organic whole, preserving in each case a relative proportion, so that the creature which has no legs is compensated by a lengthening of the spine, and the one whose lower members are exaggerated has but embryonic arms, — the horse, for instance, having upon each of his members but one colossal finger, developed thus at the expense of all the others, — when we consider this rigorous unity of the creative principle, we are tempted to ask if man, when he in his turn undertakes to create, should not proceed in the same manner, and, indeed, if he has not actually so proceeded in all those eras of the world which have been distinguished for the glory of art. Now, it can scarcely be denied that

geometry is the natural point of departure, the organic principle of architecture, and, this admitted, that the triangle is the most perfect of geometrical figures for the standard and type of architectural creation; and further, that of all the triangles the equilateral, and that whose height is to its width as $2\frac{1}{2}$ to 4, being engendered by the right triangle, whose sides are 3, 4, and 5, conform most completely to the laws of statics and to proportional divisions, the intersections of their sides with the vertical lines giving divisions according to a basis of unity, giving successive points recalling the inclinations of these sides, and therefore, proportions compelled by these generative figures. On the other hand, it is evident that the application of these triangles to architectural designs obliges the designer to keep to certain proportions between heights and widths; and, consequently, while he has perfect liberty to assume certain heights or widths according to the practical conditions he has to

Fig. 93.



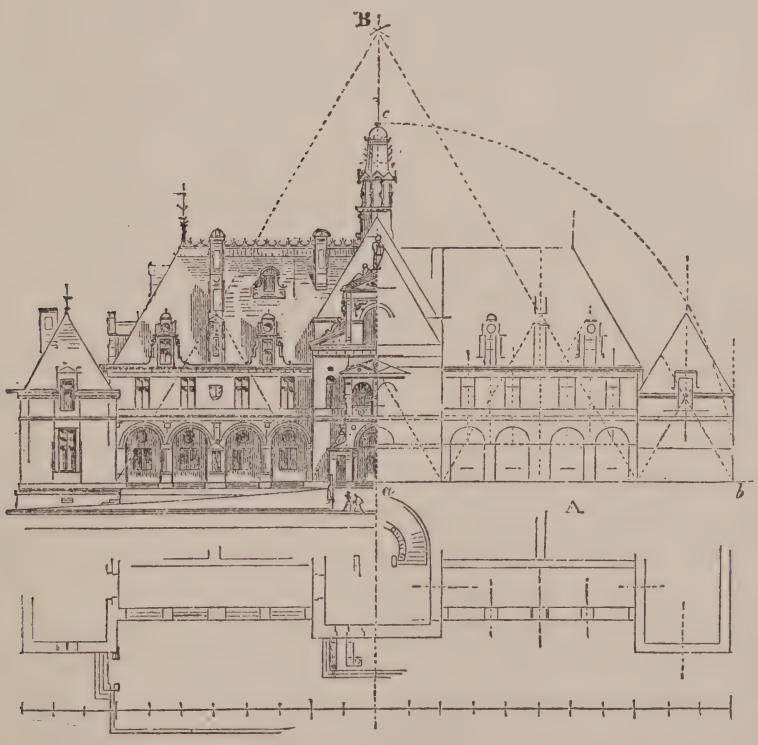
fulfil, he is constrained by this system of proportions to adopt corresponding widths or heights, which, however much difference there

may be between them, must always be in harmonious relations with each other.

Let us suppose, for instance, that we have a façade to construct, composed of a first floor, forming a portico, and of a story above. If A A′ A″ are given by the conditions of the problem as the axes of the piers of the portico, let us construct equilateral triangles with A A′ and A′ A″ as their bases, and B and *l* as their summits respectively; the points B and *l* should be the highest points of the openings of the arcade. Dividing the heights C B and *i l* of these triangles each into 5 parts, and measuring off 2 of these parts on either side of the centres C and *i*, we obtain a proportionate opening for the arches, as at *a* and *g*, whence we elevate therefore the perpendiculars *a h* and *g m* as the jambs of the archway; and the second division *b* from the apex *l* must be the centre from which we strike the arch *h l m*. Now as the height *a h* of the piers to the springing of this arch must be 3 parts and the opening *a g* 4, the diagonal *g h* must be the hypothenuse of the triangle described by Plutarch and consequently must be 5 parts long, or the same length as the height *i l* of the whole archway. In this arcade, therefore, we have a unity of measure, but a plurality of parts, relations, and distances. It is well to note, moreover, that the relation of 3 to 5, in architecture as well as in music, is a harmony. If we prolong the sides of these triangles, as A B and A″ *l*, they will meet above, as at E, thus forming a large equilateral triangle A E A″, whose apex E should be taken as the level on which the main cornice is to be established. If we prolong the hypothenuse *g h* and the vertical C B, they will meet at O, on which level the string-course between the first and second story should be placed. Thus the right-angle triangles *a g h* and C *g* O being similar, the heights and widths fixed by their perpendiculars and bases respectively must be according to a common unit of proportion. The proper level P P′ of the window-sills in the second story being ascertained, the points R R′ of its intersection with the oblique lines of the equilateral triangles will give us the proportionate width of the windows. The eye, therefore, will be instinctively guided by the successive architectural points A, B, R′, E in the oblique line A E of the triangle, to realize a certain geometrical and therefore harmonious relation of parts between the two stories, and to recognize that the whole composition is arranged according to an understood system of variety in unity.

In Fig. 94 we venture to present another example, under somewhat unfavorable conditions. It is proposed to build the façade of a château, composed of two stories, dormer-windows, a great roof, and low wings. Dividing the whole length into 22 parts, we take 4 of them for the central pavilion and 3 for each of the flanking pavilions. Following the constructive geometrical lines, the observer can see how the general disposition of parts has been proportionally arranged by them; but, as the apex B of the great equilateral triangle is evidently too high to be available as an architectural point, we strike from the centre *a* of the base line an arc *b c* with a radius *a b*, equal to half the length of the entire façade; by making use of the point *c*, as indicated, we obtain an harmonious relation between the extreme width and height.

Fig. 94.



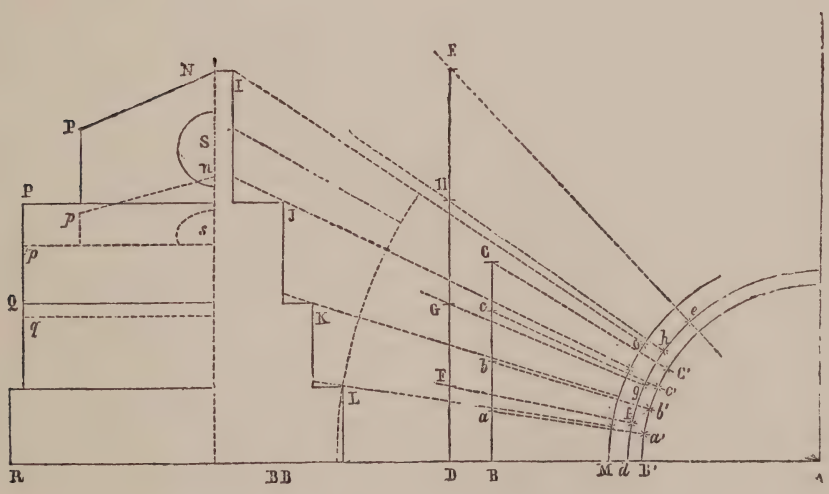
These figures are not offered as models, but only for the purpose of explaining the practical application of a method in architectural proportions at a time when all such methods seem to be abandoned for mere caprice. But it must be borne in mind that no method

can supply the place of observation, knowledge, and taste. While availing himself of mathematical means to justify his proportions according to a unit of harmonious relations, the artist must ever remain jealous of his individual liberty. The geometrical theory of proportions requires as many different methods of application in actual practice as there are examples; this fact explains how dangerous it is to apply the definition *classic* to the orders; for this definition implies an immutable method, a perfect formula, and undertakes to put the *module* or unit of admeasurement in the place of reason, and to substitute the *absolute* for the *relative*. Now, in architecture, every detail should bear a defined relation to the general composition; it should, in itself, be neither absolute nor capricious. Among Greek and mediæval artists alike this principle was recognized and practised; and as, in a mediæval structure, everything was relative, and every member occupied a necessary and proportionate part of the general harmony, every such structure, whether civil or religious in character, appears greater than it really is.

But it is necessary to notice some of the architectural dispositions which exceptionally influence this method of proportions. The Greeks (at least in those of their buildings which remain to us) had generally but a simple order or arrangement of façades elevated on a single plan. They never superimposed orders nor built them in successive retreating stories. Now it is easy to understand that, if it is comparatively a simple thing to apply a theory of proportions to a façade built vertically on a single plan, it is quite otherwise to make it of practical use in structures, not only of several stories, but with each story possessing, as regards the façade, a different plan from the rest. In such cases, of course, a method of proportions applied to the design in geometrical elevation would be quite disarranged in its effects when the design is constructed and seen in perspective. The eye being a portion of a sphere whose centre is the visual point, all objects presenting themselves to the vision are reproduced on a curved surface. Thus (Fig. 95) let A be the visual point, and B C a mast divided into four equal parts, B *a*, *a b*, *b c*, and *c* C. Now, as these divisions present themselves to the eye at A, they are unequal, as represented in the quadrant at B′ *a′*, *b′ c′*, and *c′* C. But if we desire that the mast should appear to be divided into four equal parts, we erect the mast D E, and so divide it that rays passing to the eye shall intersect the curve in the equal arcs *d f*, *f g*, *g h*, and *h e*, rep-

resenting the unequal lengths D F, F G, G H, and H E. But if it is proposed to build a façade composed of four vertical planes, retreating successively one behind the other as they rise, as indicated in the section B B, made perpendicularly to this façade, and if it is proposed that these four stories, when seen from the point A, shall appear of equal height, it will be necessary so to arrange them, that the lines A I, A J, A K, and A L shall divide the arc M O into four equal parts; thus the façade, which, in geometrical elevation, would be represented by N P Q R, would, when seen from the point A, assume the appearance given by the dotted lines *n p q* R, and the rosette window S would appear as indicated at *s*. When, therefore, an edifice is to be designed with a due regard for proportions, it is very essential to take into account the point or points whence it will be most usually seen, and the diminutions or disarrangements which will be created by the heights, and by the projecting and retreating surfaces when seen from the point or points referred to. But as the architect is obliged to submit to the exi-

Fig. 95.



gencies imposed by certain appropriations and requirements, he cannot always dispose these heights and retreats as may seem most desirable to him in view of the phenomena of perspective; he must endeavor so to treat his façade as to suggest to the spectator that which his eyes cannot see and that which ought to enter into the general composition, and must use such artifice in the arrange-

ment of his details as shall diminish that which would otherwise seem too large and increase that which would otherwise appear too small. It is then that the artist of merit has occasion to avail himself of the extended resources of the art (not the formulas) of architecture.

We have but very vague information regarding Greek interiors. The houses and public monuments of Pompeii, when compared with those of Magna Græcia, belong but to an insignificant town. But of the interiors of the dwellings and public monuments of Athens we have no means of forming an idea, save by induction; it can at least be confidently asserted that the Greeks never used in their interiors the forms suited for their exteriors. In an interior the field of observation is limited; there are no distant views to be obtained. These conditions suggest the use of cornices of considerable projection, that their under surfaces may have value as seen from beneath; but, on the other hand, these projections seriously obstruct the view of the interior architecture. If the Romans, therefore, used complete orders in their enormous interiors, like the halls of the baths, they do not appear to have attempted to decorate their smaller apartments in this way. But the interiors of the baths of Titus, of the Palatine, of Pompeii, and of the Villa Adrian are not cut by projecting cornices, nor embarrassed by pilasters and columns, but decorated only with a fine stucco, adorned with sculptured panels and with paintings. It is quite allowable to suppose that the Greeks of Attica used a similar method of decoration; and it is certain that when they used orders in the interiors of their temples, as in the Parthenon, the dimensions of these orders were very much reduced as compared with those adorning their exteriors.

In Persia, where the traditions of a high antiquity are still preserved, the decoration of interiors is confined to paintings, encaustic tiles, imbrications, and very delicate moulded reliefs, thus preserving to the rooms their purity of form, and keeping them free from those features which, by their boldness of projection, are apt to attract an undue share of attention. It should not be forgotten that a system of proportion, which may be good when applied to a façade to be viewed from a distance and to receive direct light, would be misapplied if employed in the decoration of an interior; and if the conditions of great interiors like the basilicas and cathedrals are such that their proportions, in general transverse or longitudinal sections, may

be regulated by a monumental system, such a system cannot be applied to the details of these interiors. It was hardly before the close of the sixteenth century that this error was committed, when the architects in Italy and France began to decorate their interiors with orders and features such as were made only for exteriors.

Strong and forced contrasts of architectural features, instead of creating startling effects, as intended, often serve only to apparently diminish the real dimensions. Hence the disappointment with regard to size experienced on the first view of the interior of St. Peter's at Rome; and hence, when we see certain modern rooms encumbered with columns and entablatures, the instinctive desire to free the interiors from these superfluous and ponderous adornments, in order that the actual dimensions and forms of the rooms may be restored. As light plays a very important part in architecture, it is evident that an entablature, perfectly composed to produce a certain effect in the open air with the light coming from above, will have an entirely different effect when placed in such a position that it can only receive reflected light. A Corinthian capital, which is most beautifully defined when seen from a distance and exposed to a luminous angle of forty or fifty degrees, loses all its value when seen from below and lighted only by reflection. It is evident that the Greeks appreciated these natural phenomena; for the frieze around the cella of the Parthenon, under the shadow of the portico, is so sculptured as to produce its effects by the aid of reflected light alone; and their Doric capital, which was designed so as to preserve its character, whether illuminated by direct or reflected light, often had its delicately sloping echinus decorated with superficial designs in color, with especial reference to being seen from below in their interiors. But it is hard to believe that these artists, before the Roman domination, ever used Corinthian columns and entablatures in their rooms, or were ever so enslaved to the terms of a formula as indiscriminately to apply standard architectural members to positions where they must necessarily injure, confuse, or at least mask each other.

If it is the aim of an architect, when he fits an architectural order to a room in the modern fashion, to diminish the apparent extent or height of this room by so doing, I admit that he exactly attains his purpose; but if it is desirable to produce the contrary effect, he must avail himself of the resources of his art to magnify and not to reduce these apparent proportions.

Gothic architecture, said M. Raoul Rochette in 1846,* "presents certain inconsistencies which cannot be justified by the laws of good taste, or conciliated with the civilization of modern society. The distribution of its architectural members is governed by *none of those principles which have become rules of art only because they are the result of experience.* IT HAS NO SYSTEM OF PROPORTIONS; its details have no fixed and understood relations with the masses; in the invention as well as in the employment of ornaments, everything is arbitrary and capricious, and *the profusion of these ornaments on the outside of the churches, compared to the complete absence of them in the interiors,* is a painful blemish and an indefensible absurdity."

The illustrious perpetual secretary unconsciously paid a high compliment to Gothic architecture in thus bearing witness to the difference of treatment between its interiors and exteriors; for this difference was indeed in accordance with a principle *which had become a rule of art because it was the result of experience* as well as of good sense and good taste. In fact, if a façade of great extent and height, which can be seen under various aspects, from far and near, in front and obliquely, requires to be broken by numerous projections, in order to obtain agreeable and varied effects of light and shade from every point of view, not only the points of view, but the surfaces viewed, are necessarily comparatively restricted in interiors, and the architects should take these new conditions of limitation into careful consideration.

Although the Romans often neglected this principle, I firmly believe that the Greeks held to it strictly; and as for the mediæval architects, there is ample evidence that they habitually submitted to it. Thus, whatever the dimensions of their great interiors, we observe that a single order occupies the whole height from the pavement to the springing of the vaults. But when, in the era of transition, as in the cathedrals of Notre Dame of Paris, of Noyon, of Sens, Senlis, and in certain churches belonging to the close of the twelfth century, an order was placed over an arcade along the nave, the architects had sufficient taste in all such cases to make this lower arcade, or order, so subordinate to the superstructure as to serve, as it were, simply as its base.

* "Considérations sur la question de savoir s'il est convenable, au XIX^{e} siècle, de bâtir des églises en style gothique": a report read before the Academy of Fine Arts in 1846, and communicated to the Minister of the Interior.

But when this architecture was finally developed into a complete style and a perfect unity, as at Rheims, Amiens, Bourges, Chartres, etc., the more its exteriors were accentuated by mouldings and projections and features of marked expression, in order to profit by the effects of direct sunlight, the simpler were the lines of the interiors, the less bold the projections, the more *unity* in the whole decorative treatment. In these edifices, the exterior is made to invite the spectator to turn around, to admire and to behold the various effects at every point of view; in the interior, on the contrary, everything is arranged to fill the mind with ideas of calmness and grandeur; the sculpture is rare, the vertical lines are multiplied, the details are reduced to the human scale, and everything concurs to produce a grand unity of effect. And when we analyze these details, we find that every member and every profile has been traced for the position it occupies, and to take its designated part in the general effect. If the cathedral of Amiens were a mass of ruins, every portion could be assigned to its appropriate place by means of the geometrical formula indicated in Fig. 94.

M. Raoul Rochette complained of the poverty of the interiors of our mediæval churches as compared to their façades, without considering that these interiors were originally decorated with paintings, stained glass, and with appointments and furniture generally very rich in character. In like manner it is evident that Greek interiors were decorated rather with paintings and movable objects than by a complication and elaboration of purely architectural features. This is a necessary inference, because the Hellenic artists must have recognized and rigorously followed a principle so true and so natural. But what was the cella of a Greek temple compared to the interior of the cathedral of Amiens, — a surface of three hundred square feet to a surface of twenty thousand? Do not let me be understood as referring to this difference as a test of superiority; for art is independent of dimensions, and no one will pretend that the church of La Madeleine is equal to the little temple of Theseus; nor yet can it be contested that superiority of size carries with it an increased difficulty of the problems to be solved by the architect. If it requires careful study and repeated trials to give happy proportions and a suitable decoration to a room of eighteen by thirty feet, it needs studies still more profound to preserve an aspect of unity, harmony, and grandeur in a hall of one hundred and fifty by four hundred feet. Yet, certainly, this increased

difficulty was triumphantly met in the civil and religious edifices of the Middle Ages, and even of the Renaissance, as shown, not only in the churches of that time, but in the great halls of Sens, Poitiers, Montargis, of the palace at Paris, of the château of Coucy, and even in that of Fontainebleau, although of a period much more recent; and, observe, this unity of effect was not obtained by repeating in the interior the external features of architecture.

Even the Romans applied this principle, in their better moments, or, I should rather say, when they gave full liberty to the Greek artists in their employ, and did not thrust their love of the sumptuous and colossal between the artist and his work; for sometimes, when they decorated the halls of their baths, and more especially rooms of less dimensions, with orders originally invented for exteriors, they were wise enough to modify these orders with discretion and artistic feeling to suit their new positions.

But, on the whole, the Greek artists, in the employ of the Romans, had a deleterious influence over Roman architecture. Since it was a policy or a mark of good taste among the Romans to regard themselves rather as the protectors than the conquerors of the Greeks, the latter cunningly availed themselves of their privileges, not to place the delicate rules of their art in opposition to the coarse and ostentatious taste of their patrons, but to seduce these barbarians by lavishing richness of material and elaboration of workmanship.

The Romans cared little to appropriate and transmit to posterity the ideal distinction of Greek art, which they could not understand, but they regarded it as a matter of importance to appear the most powerful people on earth, and, by using the materials most difficult to work and by profuseness of decoration, to fill the world with wonder at their resources rather than with admiration at their taste. The Greeks, accepting these conditions as imposed by the Roman barbarian, pushed profusion to such extremities as presently to bring the art, of which they were such docile workmen, to disgrace and confusion. But when this Roman art had fallen to such depths of vulgarity, and had become so splendidly insignificant that it was no longer possible to restore it to a healthy condition, the Greeks, instead of themselves sharing in the degradation to which they had been such willing assistants, recovered their natural qualities as soon as the pressure upon their genius was removed, and Byzantium in the fifth century beheld them once more free to develop their own inspirations; but

then, instead of reproducing the Parthenon, they contented themselves with clothing the structure which the Romans had invented, and which had been exclusively consecrated to Roman uses, with an architectural or decorative envelope far more appropriate than that which had been employed under the empire from Augustus to Constantine. Always in the front of progress, they still maintained their position while working for their powerful patrons; abandoning their Ionic and Doric traditions under the influence of new conditions and accepting the Roman architecture for what it was, they arranged it, and out of a structure they at length produced an art. Instead of weeping forever upon the steps of the Parthenon, like the Jews among the ruins of Solomon's temple, they educed out of the effete art of Rome in the third century the art of Byzantium.

We have observed that the Athenians of antiquity never invented, but combined, purified, perfected. They were the best editors of the works of mankind, because everything which they received, whether in art or in philosophy, passed through the alembic of an elevated and logical spirit; thus, under Pericles, out of the experiments of the Ionians and Dorians, they deduced the architecture and sculpture of the Parthenon; from the schools of Pythagoras, Parmenides, and Zeno, and from the empiric system of Ionia, Plato and Aristotle were born. And, at a later period, this same Greek race retained in its impoverished blood energy enough to develop from the worn-out art of old Rome that vigorous offspring which we call Byzantine architecture, the mother of everything which merits the name of architecture since the days of Constantine.

Our mediæval ancestors, like the Greeks, whom they succeeded in the West, were lovers of progress, and formed a complete whole out of the scattered traditions and fragments of anterior arts. Like the Greeks, also, they never paused in their progress, and, after having thus built up an art, they continued to move onward, till they finally brought about its fall by the abuse of its own principles; after having had their sophists, their descendants came under the yoke of a Roman protectorate, as it were, to play once more the part of the old Greeks, and to debase the architecture of Rome. When we shall have become weary of contemplating this last and pale reflection of a glory which is not our own, we shall, perhaps, like the Greeks at Byzantium, avail ourselves of our own resources, and once more, by reverting to the principles which our ancestors followed

with such signal success, find a new application of a form of art which has ceased to obtain expression or comprehension among us.

Modern society is floundering about among many strange contradictions, and not the least among these is that those who approve and defend the revival of classic architecture among us are pursuing a course diametrically opposed to that always followed by the Greeks of antiquity. Now if, in respect to antique art, the Greeks were capricious and extravagant, while the Romans were the real artists, the classic revivalists are logical in throwing aside the productions of mediæval art; but if the Greeks were the artists, and the Romans evidently the barbarians who sought to civilize themselves by contact with their *protégés*, it is the genius of the Greeks which ought to survive in art, and not that of the Romans; but the peculiarity of Greek genius was constant mobility; rather than stop or retrograde, it preferred to move on even towards a decline, if it could not find a profitable field for its labors by taking up a foreign art. The Greeks did not throw aside Roman architecture when the wearied empire placed its art in their hands, but regenerated and rejuvenated it, so that the art was not only revived into a condition of health, but enabled to furnish the elements of new styles to the whole West and to a part of the East. Now, referring here to the question of the arts alone, let us not forget that between the Greeks and the Romans there was a diametrical opposition of principles. Whether in a political, governmental point of view, whether in respect to civilization, the Romans were inferior or superior to the Greeks, or whether the Roman *unification* has or has not been of immense benefit to humanity, I do not propose to discuss; but it is certain that this *unification* was entirely opposed to the Greek spirit, as every such tendency must be to every artistic people. Yet the conquered Greeks have always been regarded as superior to the Romans by all the distance which separates a tragedy of Sophocles from an ordinance of police. Artistic peoples have always been exclusive in their nature, apt to coalesce within narrow social limits. The Greeks and Egyptians, who were the artistic races of antiquity, always, even to the end, entertained for the barbarian, for the foreigner, sentiments of contempt and repulsion. But the Roman cosmopolite could not be an artist. There was, on the other hand, a real art in France at the feudal epoch, because isolation was then, as it has ever been in the history of the world, favorable to the development of art.

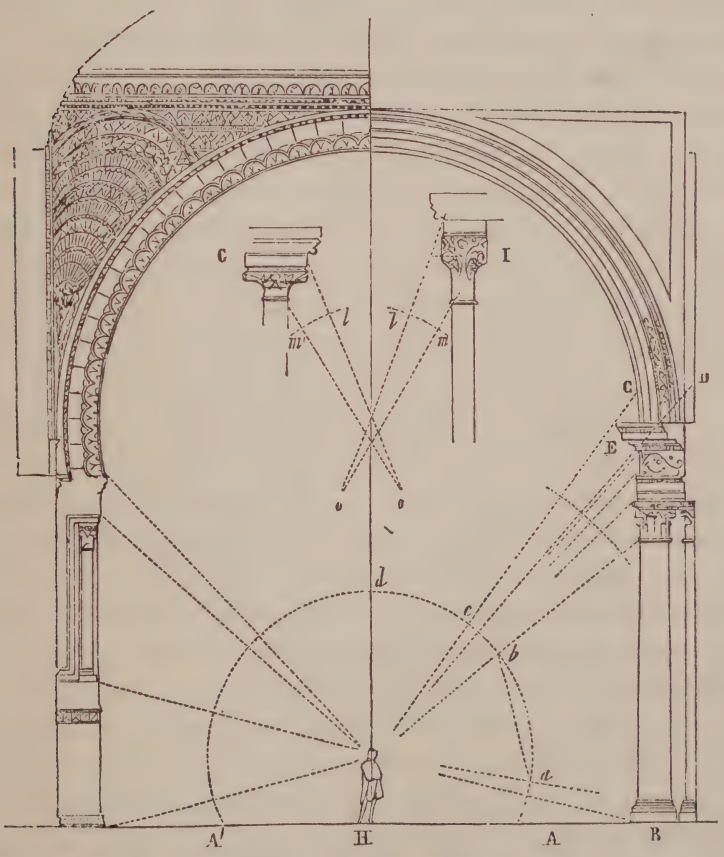
The part which the Romans played in the history of civilization was so really beautiful and grand, that they can well afford to dispense with any credit which is not actually their due. In their conduct with reference to art they were perfectly consistent. Thus, if we look at their administration of justice, we shall find that, in their earlier history, it was based upon absolute principles, like the laws of the Twelve Tables, for instance; but, as soon as the empire was established, it was found that the strict application of this system was in contradiction to the spirit and customs of the nations under their control; therefore they instituted *prætors*, or interpreters of the law, leaning rather towards equity than towards the letter. In the same manner, in the domain of philosophy they had their stoics, whose systems were no longer confined to a text, a written law, but accommodated to the various conditions of the human mind, to local circumstances and traditions, and to the customs and prevailing ideas of their time. This explains how, in their buildings, they gave a place to Greek arts, considering structure as a written law, but admitting of very different applications. It agrees perfectly with their spirit as the great civilizers and levellers of the world; but it is quite inadmissible to suppose that the Greeks, because they accepted the part assigned them in this great drama, thereby definitely abandoned their own art, so logical and elevated in its tone and so absolute in its principles. It is true that the Greeks *worked* for their masters, but they never undertook to demonstrate to them the principles of their exclusive art, because they well knew that this very exclusiveness would render these principles unacceptable to their conquerors. Although the distinctive spirits of these two races seemed to be perfectly amalgamated in Roman architecture, yet the same fundamental antipathy which exhibited itself before Paulus Æmilius still existed, and, as soon as the Roman Empire was established at Byzantium, it was once more openly developed. Notwithstanding the partiality of Adrian, and in spite of the wise and moderate spirit of the Antonines, the Greeks always regarded the Romans as barbarians. The Greek did not believe in the kind of work he did for his powerful masters; he sold or lent his labor, but he cherished his principles and his worship of art in his own breast, fondly looking forward to the day when he could express himself in perfect freedom. There is enough of this Greek spirit of antagonism left in our republic of the arts to make this phase in the history of architecture well worth a careful study.

The Romans never appeared to have been sensible to harmony of proportions; they were an ostentatious people, who would have sacrificed the most beautiful proportions for the sake of introducing a few columns of marble, porphyry, or granite. So far as Roman structure is concerned, if it always produces a grand effect, it is because it is true and carefully calculated; these qualities insensibly recommend it to the eye. But, as we have had occasion to say before, the decorative envelope which covered this structure often detracted from its grandeur and majesty; certainly, this envelope never conferred these qualities on the building to which it was applied. I am firmly convinced that if we could see to-day any of the antique monuments of Rome preserved intact, apart from the immense interest they would have in our eyes and apart from the dimensions of the masses and the richness of material, we should have the same feeling of disappointment that arises on viewing for the first time the interior of St. Peter's at Rome, — a disappointment resulting simply from the want of proportion in the architectural features with which that enormous structure is clothed. Deprive the interior of St. Peter's of its great stucco pilasters and of its entablatures, on whose projections a man might ride on horseback, take away its monstrous statues, its panelled incrustations, and all the ornaments which encumber and deface its lines, and we should have left a great hall which would appear what it really is, colossal. It is only at twilight, when the masses alone can be seen, that the true grandeur of St. Peter's is fully apparent; but in broad daylight no idea can be formed of its actual size, unless the eyes are so shaded with the hand as to embrace only the pavement of the church, that is to say, a plain tranquil surface, quietly decorated with compartments of marble and porphyry, toned down by an accumulation of dust.

The law of the predominance of masses was rigorously applied by the artists of the Byzantine Empire, who preserved enough of the old Greek spirit to appreciate its primary importance, and it was observed also in the architecture of the Caliphs, of the Moors, of the Persians, and of the Romanesque builders of the earlier part of the Middle Ages. I cannot say, of course, that this second-hand art was at all comparable to Hellenic art, nor that the sophists of the Alexandrian schools were equal to Plato, nor that the Song of Roland rivals the Iliad in all respects; but, I repeat, we must press on, and not waste our lives in vain regrets.

In order that the transformation effected by the Byzantine architects may be better understood, the reader is referred to Fig. 96. At A is traced the section of one of those grand Roman rooms divided by bays, whose construction is good, simple, and effective. Now, observe, the column B is out of scale with the room, and its full entablature is a feature of undue prominence, concealing by its projection an important part of the arch above and of the tympanum D; notice also that, to the spectator at H, the column will be equal in length to the arc *a b*, the entablature to the arc *b c*, and the half-vault to the arc *c d*; that the length of the arc *c d* is reduced by the importance given to the points represented by *a*, *b*, and *c*, and that consequently the development of the vault, which should be and is the most important feature in the geometrical drawing, loses much of

Fig. 96.



its importance in perspective. In the proportions of a vaulted room it is very essential that the supporting members should not appear

more important than is absolutely necessary. Now, in the example presented here, it is evident that this important rule is disregarded, the arc *a c* representing the space occupied by the column and entablature to the eye of the observer at H, while the arch above is represented to the eye only by the small arc *c d*.

But the Byzantine artists, although they did not essentially modify the construction of this room, were not, like the Romans, the slaves of a traditionary form, and, instead of a grand order with an entablature, which really has no significance in an interior, they used a pier, as at A′, relieved by engaged columns or by colonnettes in the angles, without the entablature. In order to develop the arch more fully, they made it more than a semicircle, and, instead of roofing each bay with a cross-vault formed in the Roman manner by the intersection of two wagon-vaults at right angles, they used a dome, the supporting pendentives between the four arches of the bay being formed of a series of superimposed small arches, as represented at A′. Their ornamentation was flat and delicate everywhere, and so subordinated to the structure as to increase the apparent size of the room; its duty being to decorate the principal lines and surfaces of the structure rather than to conceal and falsify them by the application of extraneous and arbitrary forms. Thus the view is uninterrupted by entablatures and merely ornamental projections, the structure has its full value, and the decoration serves rather to express than to conceal the kind and amount of work performed by each member. The proper proportions between the vault and its supporters are restored.

It is well in passing to glance for a moment at the interior architecture of the seventeenth century, and to observe how far from the pure and reasonable type supplied by the Byzantine Greeks were the threatening cornices of that period, with their enrichments of gigantic figures, vases, and garlands.

But the artists of Byzantium, in endeavoring to restore to architecture a greater delicacy of proportions, did not stop here. It would seem reasonable to suppose that the moment *the orders* became, as in Roman architecture, mere decorative accessories and consequently no longer absolute but only relative in their proportions, these proportions would at once have become variable. But, like true barbarians, the Romans, in *forcing* the Greek orders into their architecture, considered probably that they thus evinced their good taste as amateurs; they imported these orders like the latest fashions, and became

absolute in the form of them, thus making themselves more Greek than the Greeks, just as the modern architectural classicists are more *antique* than the ancient themselves.

To be *classic*, in the modern acceptation of the word, that is, to follow the letter instead of the spirit of antiquity, harmonized admirably with the idea of the Romans, who administered but did not discuss. There is room to suspect, on the other hand, that the Greeks, who never imposed an absolute and official fashion in art, were but poor administrators. The orders, therefore, and especially the richest of the orders, the Corinthian, were preserved as an unalterable law by the Romans to the very last; but when architectural Rome at length delivered itself up unconditionally into the hands of the Greeks, these artists, in accepting the Roman architecture, naturally received with it the orders of which they themselves had been the first to dictate the proportions. Yet, the orders having, in the Roman application, merely a decorative significance, they treated them as such, and subjected them to innumerable transformations, or rather they preserved only the column with its capital, rarely using the entablature, which really lost its logical significance when the order ceased to constitute the monument and when the cornice was no longer the eaves of the roof; and the column itself, with its capital, they varied in form and proportion, in the true Greek spirit, to suit the exigencies of the position to which it was applied. Thus, if a capital was placed in an interior at a great height from the eye when compared to the distance from which it could be viewed horizontally, they either, as in G (Fig. 96), made it flat and projecting, so that it might have full value as seen from beneath, or they lengthened it, as at I, so that to the beholder at O both subtended equal arcs $l' m'$ and $l m$. Thus the Greek resumed his perfect freedom and with it his spirit of reason. Now if the Romanesque architects of the Middle Ages sometimes appeared to be ignorant of these new principles of proportions, their lay successors in the twelfth and thirteenth centuries in France put them in practice with a geometrical rigor interesting to observe.

The Roman system of proportions, then, was overturned by the Greeks themselves the moment they were in a position to follow their instincts and once more have an art of their own. The time when the largest monuments did not in superficial dimensions exceed fifteen hundred square feet had passed by; the new civilizations

required the occupation of enormous surfaces, and it was found convenient and profitable at this new starting-point of architectural development to make use of all that was good and practical in Roman work. These conditions were accepted by the last of the Greeks, and, in accepting them, they did not go back to their own beautiful and venerated art of antiquity and endeavor to torture it so that it might fit these new necessities, but they frankly adopted another, and, unimpeded by prejudices or patriotic traditions, placed all their intelligence and all their logical spirit at the service of the actual requirements of the day. Here is an excellent example for us, if we only knew how to profit by it. But what did the Latins of the Renaissance do when they were placed in a somewhat similar position? They immediately availed themselves, not of Roman art reformed by the Byzantine Greeks, but of Roman art deformed by a sort of administrative regimen, although redeemed somewhat by the delicate handiwork of the exotic Greeks. But as for the Italians, wavering, as they had been, from the fourth to the fourteenth century, between Byzantine and German influences, using forms of whose origins and principles they were ignorant, when at length they were prepared for a fundamental reform in architecture they had no system of their own to fall back upon and develop according to the new light around them, and so, naturally, they had recourse to the old official art of the empire. They lost nothing by this change from their previous indecision. With France, on the other hand, the situation was very different; her Latinity had ever been more theoretical than practical, and, in the midst of the moral revolution of the Renaissance, she had an art of her own, developed out of her own resources to meet her own needs according to her own spirit, an art full of capacity for new expression, full of the elements of life; and yet, when the epoch of active reform came, she rejected this entirely, and betook herself to Italian copies of a degraded art, which the Greeks, whom we still pretend to admire so much, had ignominiously thrown aside at the first opportunity! While waiting for three centuries in vain for an explanation of these inconsistencies, we have been obliged in France to submit to a tenacious and jealous official routine, based upon these very inconsistencies, and pushing their results to the last extremities of a misunderstood classicalism.

But even at Byzantium the Greek spirit was not entirely free from the interference of barbarous power; that active intelligence, enthu-

siastic for intelligent reform, was compelled once more to submit to the relentless hand of political organization; again it was fated that the formula should triumph over the spirit, and by an apparent return towards one of the forms admitted by Greek genius, to stifle that breath, which, transient as it was, served nevertheless to inspire the Romanesque architecture of the West.

At Rome, in the name of the Greeks, the free advance of architecture had been impeded, the progress of which they had been the apostles had been stopped, and, in their name, style had been petrified in a law. Even at Byzantium they were equally misunderstood, and, after their first effort to harmonize form with structure, an effectual stop was put to their work, when the Nestorians, who were the most enlightened and progressive among them, were exiled. Far from the capital of the Eastern Empire these exiles laid the foundations of an art more rational even than that of Byzantium; and yet, while solicitous for the more complete development of their own art, they did not, like modern colonists, sacrifice to it those which were indigenous to the country, and which had been naturally developed out of local necessities and customs.

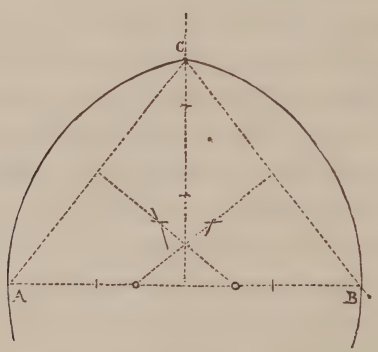
The ancient Greeks of Attica never admitted the vault into their constructions; but, after having been the submissive artisans of the Romans for several centuries, they became familiar with it, although they had but little if any influence over its form or principles, for this was a feature of which the Romans were peculiarly jealous; it was a part of their system which the Greeks, as men of taste, were regarded as good enough to decorate, but not to modify in any of its essentials. But at Byzantium, and in the Roman Oriental monuments, they were suffered to make one innovation, — to introduce pendentives into the Roman system of vaulting. This, it is true, was an important modification and a very natural deduction from the intersection of wagon-vaults with hemispherical vaults, — a deduction, moreover, to whose development, through Greek genius, the atmosphere of Byzantium seemed better fitted than that of Rome;* but the Greeks still retained the semicircular arch, which in their hands continued to be the generator of wagon and cross vaulting, and of the cupola.

* This deduction of the pendentives from the intersection of hemispherical and wagon vaults is so natural, that it seems strange not to find the pendentive in any known Roman structure before St. Sophia at Constantinople. It is therefore allowable to attribute this innovation, or rather this deduction of a consequence so logical, to the Greek artists of Byzantium.

Neither of the three triangles which we have described above, and referred to as generators of proportions among the Greeks, can be applied to the formation of the round arch, as the angle at the apex in each case is less than 90°. If, for instance, it is proposed to make the base A B (Fig. 97) of the *Egyptian* triangle equal to the diameter of an arch at its point of springing, a round arch described on this base will not touch the apex C, the radius being equal to two parts and the height C D to two and a half; but, in order that the apex C may coincide with the key of the arch, we must take the points where the perpendiculars dropped from the centres of the two sides of the triangle intersect the base, and from these points as centres describe the arcs A C and B C, thus producing that broken curve which, in modern language, is known as the *ogive** or pointed arch.

It is certain that this arch was in common use among the schools which issued from the Byzantine stock after the sixth century, and we know that it was made the point of departure for an entirely new system of construction by the offshoot in France in the twelfth century.

Fig. 97.



It is interesting here to remark that the genius of the antique Greeks attained relative perfection in art only by a long series of tentative processes all tending to the same end. They reached the purity of the Parthenon only by induction through the successive ameliorations of a great many experiments in the Doric order. From the great temple of Selinus to the Parthenon there is an insensible gradation, but in all the intermediate stages we have always the same order; the order had been formed; nothing essential was added to or subtracted from it; but the ultimate perfection of proportions was

* See article Ogive, in the "Dict. raisonné de l'arch. franç."

the result of a long series of practical observations and trials on the same given theme, following always a logical method without deviations or hesitations. In the same manner the scattered fragments of the Greek school, although intermingled with Roman traditions and entangled among Asiatic influences, still retained enough of that delicate and well-studied sentiment of proportions, which had rendered the Greek art of antiquity so illustrious, to purify every architectural work they participated in, after the establishment of the Eastern Empire and when the internal dissensions of that empire had ceased to disturb the peaceful development of the arts. And it is worthy of remark also, that all the arts which arose in the East and in Egypt after this epoch, and in which we can detect the presence of this precious Greek vein, were developed and perfected, not by rejecting the local arts, but by receiving and working them up to a higher standard.

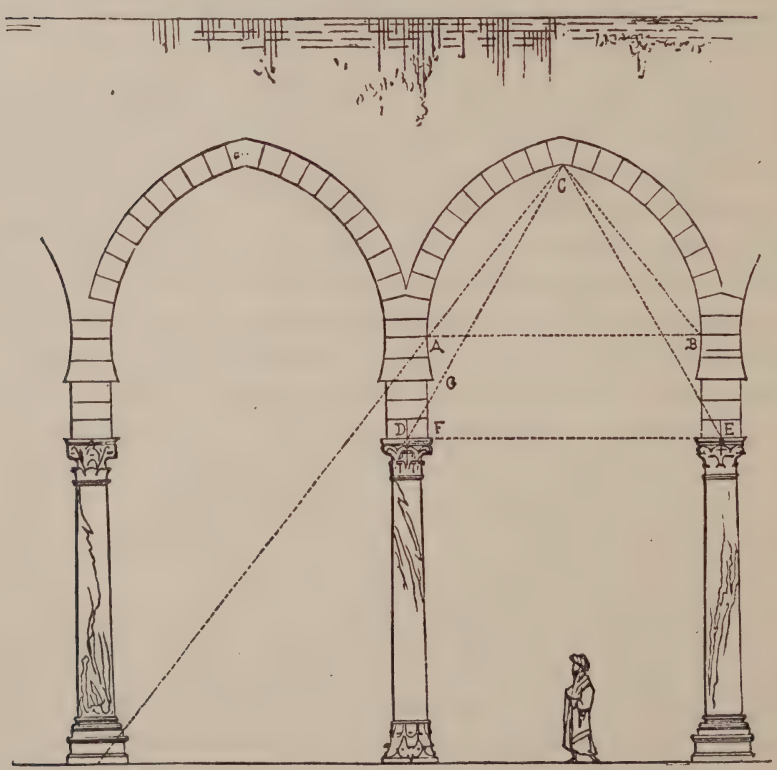
Even while under the control of the Roman Empire, the Greek artists often succeeded in abandoning the illogical mixture of the lintel and arch in the same architectural composition, and sometimes even sprung the round Roman arch with its concentric mouldings directly from the column;* thus, even at that early day, making a practical use of the projection of the capital to receive the archivolt. Although the slender Corinthian column seemed crushed under the weight of the heavy round arch thus imposed on it, the novelty of the idea and the evident reasonableness of it justified the inconsistency for the time. We must not forget, too, that Greek artists, working for masters as barbarous as they were magnificent, had no leisure to seek for extreme refinement of proportions. If such researches would perhaps have had some success under Hadrian, under Diocletian they would have been mere lost time.

But after the introduction of Islamism into history, the scattered followers of the Greek school often found themselves among barbarians, who, in the absence of any artistic taste or preference, left them a greater liberty of design; under these circumstances, the Greek enthusiastically resumed his studies of form and proportion, experimented with the arch and column, and sought for other curves than the semicircle. From these bold but intelligent experiments resulted many architectural combinations singularly beautiful both in sweep of line and harmony of proportions.

* See Sixth Discourse, Fig. 27.

Thus, in the twenty-first year of the Hegira (A. D. 641), the mosque of Amron was built at Cairo. It was this Amron who, at the instance of John Philopon, the grammarian, demanded of Omar the preservation of the precious library of Alexandria, after the capture of that city. The reply of the caliph is familiar to all: "The books of which you speak either do or do not agree with that which is written in the book of God. If they do agree with it, then the Koran is sufficient and these books are useless. If they do not agree, they certainly should be destroyed." The books were burned. Now no one can suppose that this Omar had architects with him, and we know that there were many Greek refugee artists in Egypt. The

Fig. 98.



immense porticos built around the court of this mosque are full of the Byzantine Greek spirit. Fig. 98 presents two bays of this portico. We see here that the Greek architects made use of columns taken from buildings erected under the empire, and raised on their capitals arches of a new and very elegant form and of a sweep of

line indicating a very delicate feeling for proportions. All travellers who have visited this mosque agree in their testimony that the effect of these bays is striking in the highest degree, and that they have never been surpassed in nobility of proportions or elegance of aspect. They were described thus: —

The base A B of the *Egyptian* triangle A B C is the level of the centres of the arches, which are traced in the manner indicated in Fig. 97. The point C being taken as the summit of an equilateral triangle D E C, the base of this triangle gives the level of the tops of the capitals. Thus the former triangle generates the arch proper, and the latter the position of the arch form relative to the columns. In order to avoid the weak effect of dropping a vertical line F A from the starting-point of the curve A C on to the capital, the line of the arc is continued below the level A B to the point G, thus obtaining, above the block of masonry surmounting the capital, a striking point of departure which practically gives a peculiar firmness to the construction of the arcade. In this invention we behold the true Greek artist, adorning the triumph of the new conquerors with the remains of monuments which he himself had built for his former masters, and still preserving enough activity and freshness of genius, although that genius had been so long crushed and humiliated by oppression, to set about perfecting the new art which fortune had placed in his hands.

Most of the Nestorians, when banished from Byzantium, in the fifth century, emigrated to Persia, where they found an indigenous art languishing on its own soil; mingling with this local art the traditions of the Roman structure, they soon created a new style expressed in monuments of extreme elegance and of carefully studied proportions. These Nestorians were the only people who could have afforded an artistic element to those nomadic tribes which followed Mahomet when he contemplated the conquest of all the East. The Semitic races, the Arabs, had no aptitude for the arts; and the architecture which is conventionally called Arabic is in fact only an offshoot from that Persian architecture which had been modified, as we have seen, by the Nestorian Greeks. This last reflection of Greek genius has hardly yet ceased to be brilliant.

As we have already intimated, the genius of the Greeks was not inventive; in the domain of the intellect, it arranged, established relations, deduced consequences, and pushed the art of reason to the last

limits; in material affairs, its peculiarity consisted in conferring upon the form which fell under its power the truest and most beautiful expression of which it was capable; without changing the principles of that form, it made it flexible to all the uses of art; it never created monsters; the most abstract products of its imaginative activity were embodied with a harmony so exact and well calculated as to give them the appearance of a natural growth. Even in mathematical studies, so much cultivated by the Greeks of the Lower Empire, they merely took up and deduced further results from the already extensive researches of their predecessors. The religious belief of the new masters of the East forbade all imitation of organic nature in the art which they allowed the Nestorians to practise for them; and these Greek artists, who, like their ancestors, found themselves the servants of barbaric conquerors, threw themselves resolutely into the only path which was open to their genius. Geometry became the principle, not only of all form, but of all ornament. Architecture was suddenly denuded of the richest features which had distinguished it in antiquity; figures, statuary, and all the inexhaustible wealth of floral design disappeared from Oriental art. The square and compass became the masters; and yet, even with these resources apparently so poor and unpromising, under these conditions so narrowing in their exactions, the artists whom we call *Arabs* succeeded in creating marvels of architectural beauty. It is easy to conceive how proportion then became one of the most efficacious means of procuring elegance and beauty of form. Indeed, in this architecture of the caliphs, proportion was everything, for no device was admitted to conceal or modify its defects; ornamentation was used to obtain harmony, but its only value was in the mass: it was like embroidery upon stuffs, it charmed without engrossing the mind.

The destiny of Greek genius in the history of art was very singular; although almost always in a state of servitude to foreign power, it still maintained its brilliant vitality, and had at its command resources to satisfy the most various tastes; inspired by an ideal of intellectual perfection, those marvellous workmen could be dismayed by no problem, however novel in its conditions; always investigating, they always found; although always slaves, their intelligence ruled their masters and shaped them for transmission to posterity. They were the preceptors alike of the Romans and of the barbaric hordes of Arabia, and the last effort of their genius exerted an

influence which was felt in the furthest borders of the West, and bore fruit there even in the fifteenth century.

Hitherto we have considered proportion absolutely, without regard to the system of construction or to the practical objects which buildings are to satisfy; we have treated only of the general side of the principles of harmony as applied to architectural design, and, in illustration, have purposely selected monuments very different in character and epoch. We have thus been enabled to recognize the existence of certain generic laws belonging to humanity, wherever and however developed. But there are other laws evidently depending upon such facts as the nature of materials, workmanship, manners and customs resulting from peculiarities of climate, certain aptitudes of races, wealth more or less developed, taste for luxury, local necessities, or political condition. If we sometimes discover identical principles of proportion among the antique Greeks and the mediæval artists, we shall quite as often discover an apparent absence of any analogy whatever between the Greek temple and the Gothic church. But it must be remembered that a method based upon reason, because it is so based, must lead to different results the moment it is applied to elements themselves opposed. We do not accuse a man of contradiction because he complains of warmth in July and of cold in January; the contrast of his sensations under different circumstances is no argument against the unity of his organization. But when we see men clothed with furs in summer and with linen in winter, wearing long garments at the gymnasium and short garments at a funeral ceremony, we are justified in accusing them of foolish inconsistency. As the distinction between these general and especial laws has not for a long time been recognized or understood, there has resulted an inextricable confusion in all attempts at a philosophical review of the history of architecture. Some artists are purists in the antique and some in the mediæval, and neither party has taken into consideration the especial or local laws which created and should still create distinctions of form and style.

The Greeks reasoned justly when they adopted the perpendicular post or column and the horizontal traverse or lintel, and in giving to each of these proportions relative to its function. The Romans reasoned but poorly when, in applying the *order* thus formed to their vaulted monuments as a mere accessory, they retained these relative

proportions absolutely. But the Byzantine Greeks, although they admitted the principles of Roman structure, were very careful not to consider the *order* as a type of fixed proportions.

In the West, in the Middle Ages, the column became independent of the *order;* it was elongated or stunted, in accordance with the function it filled in the general architectural system; it was slender or thick, as required by the nature of the materials employed; for it is unreasonable, all other things being equal, to give to a granite column the same diameter as to a column cut in a friable sandstone. To censure the proportions of the columns of the nave of Notre Dame of Paris, because they do not agree with the acknowledged proportions of the Grecian or Roman orders, betrays a remarkable ignorance of the meaning of proportions, which are nothing more than the proper relations between the parts and the whole, these relations being imposed, not by the parts on the whole, but by the whole on the parts. In the Greek temple the part (that is, the *order*) was in reality the whole; the proportions of the order compelled the proportions of the entire structure; but when the *order* became only a part of a general composition, it lost its quality as an *order* and became a subordinate member; it abandoned the entablature, for example, and was reduced to the column alone, — the point of support. Presently the column itself lost its original proportions, to assume new ones relative to the new place or function it filled, or to the nature of the material in which it was cut; its capital and base submitted to similar variations of height, projection, or strength, as required by the general composition of which they were component and essential parts. All this was strictly logical. But it is possible in the arts to arrive at displeasing results even through a just process of reasoning, if choice of form, a feeling for the beautiful, does not intervene as a corollary of such reasoning. Thus the French architecture of the fifteenth century is a true principle forced to the utmost limits of expression; but that architecture is objectionable, because of the form evolved from the absolute application of this principle; it passed into a state of mere demonstration, of pure geometry; it was a given problem solved, it was not a conception of art.

As soon as the *order* did not constitute the whole architecture of a building, the order ceased to exist, because it no longer had any right to exist as such. In the offshoots of Roman architecture, reconstituted by the Greeks on new principles, the *orders* therefore dis-

appeared. There is no appearance of them either in the architecture attributed to the Arabs or in the western mediæval architecture; these developments of style must be considered from an entirely different point of view, although, as we have seen, there are certain general laws of proportion common to both systems. Geometry became their sovereign mistress, and it is not strange that the western artists from the twelfth to the fifteenth century confounded architecture and geometry under the same personification of art. Yet, while the great artists of the East and West, of the Greek schools of Alexandria and of the lay schools of France, recognized geometry as an ever-present element in the general conception as well as in the detail of all their architectural works, they still preserved a sentiment of form so true, an appreciation of beauty so just, that, at least to the vulgar eye, this sentiment and this appreciation seem to have been their supreme law; it was only in the subsequent degenerate epochs that architecture was suffered to betray the geometrical processes from which it was evolved. This is the point where the peculiar and distinctive genius of the two peoples is most evident, and where it is most clear that the western artists never imitated those of the East, although they had drawn their inspiration from the same source.

If, as we have said, the Greeks were no inventors, the western men were inventive to a remarkable degree. The Arabs, or, rather, the Nestorians, their masters in art, did not change the Roman structure, but contented themselves with modifying its envelope; the geometry which they called to their aid did not lead them to discover new systems of construction, but simply inspired new curves for their arches, and was the generative element of all composition of ornament; in their hands it became a plaything, and occupied the eye with endless and marvellous combinations of lines. In the West, on the other hand, geometry at once overturned the Roman structure, which was no longer sufficiently scientific to meet the new emergencies of architecture; every day it suggested new problems and laws of equilibrium until then unknown; with an inflexible logic, it proceeded from general design to details, dictated form, imposed profiles, and, in short, developed its energy with such rapidity and boldness, that, in the short space of two centuries, there was no room left for the individuality of the artist. It progressed like the inexorable laws of civilization.

In order that we may comprehend the differences between these two forms of art, both of which became the slaves of geometry, let

us enter the Alhambra and examine there one of the last buildings due to what is called Arabic civilization. We perceive a structure concrete, like that of the Romans, with antique plans, brick walls, masses maintained simply by the adherence of mortars; light porticos, whose delicate marble columns and spandrels of baked clay and concrete support wainscotings of wood. In all this we see no effort to obtain a structure other than that which prevailed at Rome and of which remains may yet be seen in Pompeii. But these concrete masses of clay and brick and mortar are faced with stucco, presenting to the astonished eye the most intricate geometrical decorative combinations which it is possible to imagine. The men who inhabited these palaces — contemplative spirits, pursuing a sort of serene and dreamy fantasy in the midst of these lovely but aimless combinations of ornament, floating in a vague sea of indefinite and sensuous delight — certainly had little in common with the restless, energetic, practical, logical races of the West. But if, on the other hand, we enter the cathedral of Amiens, or into any of the more finished edifices of the Middle Ages in the West, the first impression is a sentiment of unity; the whole structure is comprehended at once; no detail distracts the eye from the general harmony; it is grand: but if we would examine into the means of execution, we are at once amazed at the quantity of geometrical combinations which have aided in the conception of the skeleton of the structure.

In the Arabic monument, geometry supplied the vestment; in the western mediæval structure, it gave the body. In the Arabic monument, geometry had little part except in the decoration; in mediæval architecture, where, at least after the thirteenth century, all decoration was floral, geometry had ceased its work when the building began to be ornamented. We can, indeed, discover in monuments towards the close of the twelfth century in France some traces of the influence of geometry in certain decorative parts, belonging to traditions anterior even to the Roman epoch.

Thus, in the angles of some great capitals of the second half of the twelfth century, there is a kind of volute of a peculiar character, like the massive curve of great leaves, curling inward at their extremities.* But, in studying the curves of these volutes, they seem to have been traced by a geometrical process. Thus (Fig. 99, at A) the eye of the volute being at B, draw through this point the horizontal

* Choir of Notre Dame of Paris, St. Julian-le-Pauvre, the cathedral of Noyon.

line *a b*, the perpendicular *c d*, and the oblique lines *e f* and *g h* at angles of forty-five degrees; *a* being the point of departure of the curve, draw the perpendicular *a i* to the line *e f*; from the point *i*, the perpendicular *i j* to the line *c d*; from the point *j*, the perpendicular *j k* to the line *g h*; and so on to the eye B of the volute. Perpendiculars dropped from the centres of lines *a i* and *i j* will meet at *g'* on the line *g h*, the centre of the arc *a i j*; perpendiculars dropped from the centres of the lines *j k* and *k l* will meet at *m* on the line *e f*, the centre of the arc *j k l*, etc. Thus is obtained a

Fig. 99.

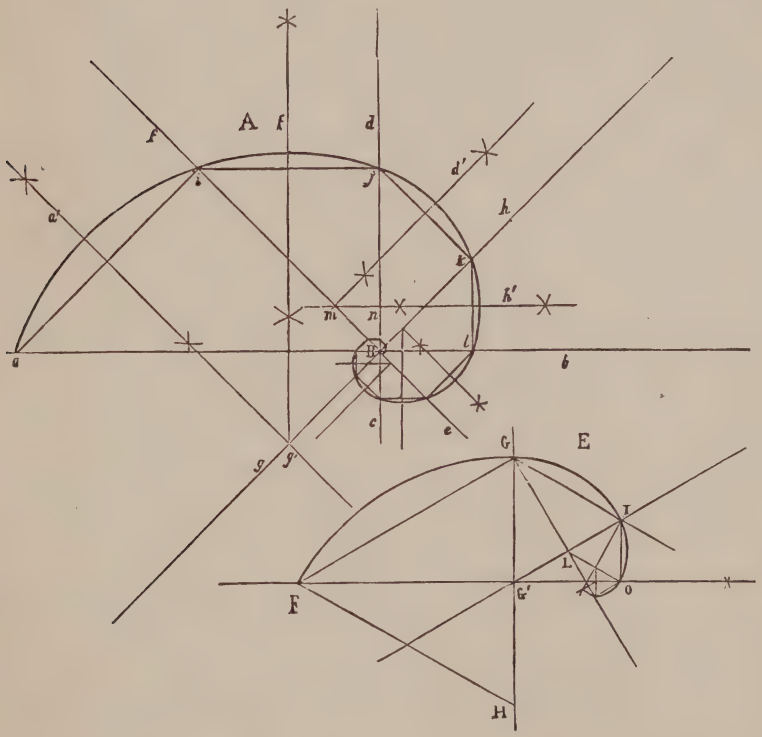


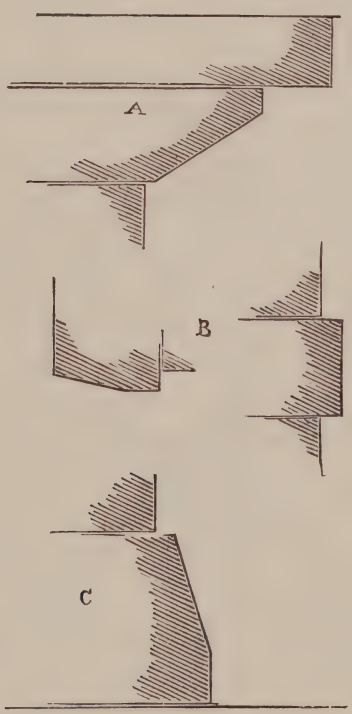
figure whose energetic curve recalls certain volutes of primitive Ionian art. Other volutes are obtained by means of the equilateral triangle (see Fig. 99, E); F G H being this triangle, strike the arc F G from the point H; divide the side G H in halves, and on the half G G′ construct the equilateral triangle G I G′; strike the arc G I from the point G′; divide the side I G′ in halves, and on the half I L construct the equilateral triangle I O L, striking the arc I O from the point L, as a centre; and so on. The artists of the twelfth century

obtained these geometrical methods of tracing volutes, not from the Romans, but from another and much more remote source. Indeed, to discover similar traces, we must penetrate to a very high Greek antiquity, to Ionia especially; for, between the ornaments of the end of the twelfth century in France and certain Greek monuments of Asia Minor there certainly exist some very striking relations. In the profiles of mouldings too there is a singular resemblance; the principles by which they have been formed are the same, and the curves sometimes identical.

It needs no very intimate acquaintance with Greek monuments, whether Ionian or Dorian, to recognize that the composition of mouldings was regarded by their architects as one of the essential parts of art; and that this composition was not capricious, but in accordance with strict reason and with a very delicate feeling for form. All the mouldings of this beautiful architecture were caressed, as it were, lovingly. Now, in composing these mouldings, there are two conditions to be observed: the function of the moulding whose profile we are studying, and the effect we desire it to produce in its position. A profile is good only when it answers to these conditions. The substance in which the profile is moulded or cut may modify it, without necessarily changing these principles. Thus, it is natural to give to a profile cut in marble more delicacy and even meagreness than to one formed out of a friable or coarser stone; but such considerations affect only the angles, in rendering it essential to give to them more or less sharpness, or the hollows, in requiring more or less depth. In either case, the principle remains the same. But to give to wooden mouldings the same character of profile as to mouldings in stone or marble, to interior mouldings the peculiarities of exterior mouldings, are indications of extreme barbarism. The mediæval artists observed these laws in their architecture as carefully as the Greeks themselves. If we may dare to draw a comparison, considering the very small number of Greek monuments remaining for our inspection, the mediæval builders pushed their observance of these principles even further than their great prototypes. In Greek, as in mediæval architecture, the functions fulfilled by mouldings are threefold: they form a footing, support a projection, and mark a height or frame in a void. In the first case, the moulding is a base or a plinth; in the second, a cornice; in the third, a string-course, a frame or architrave. A moulding has no reason outside of these three con-

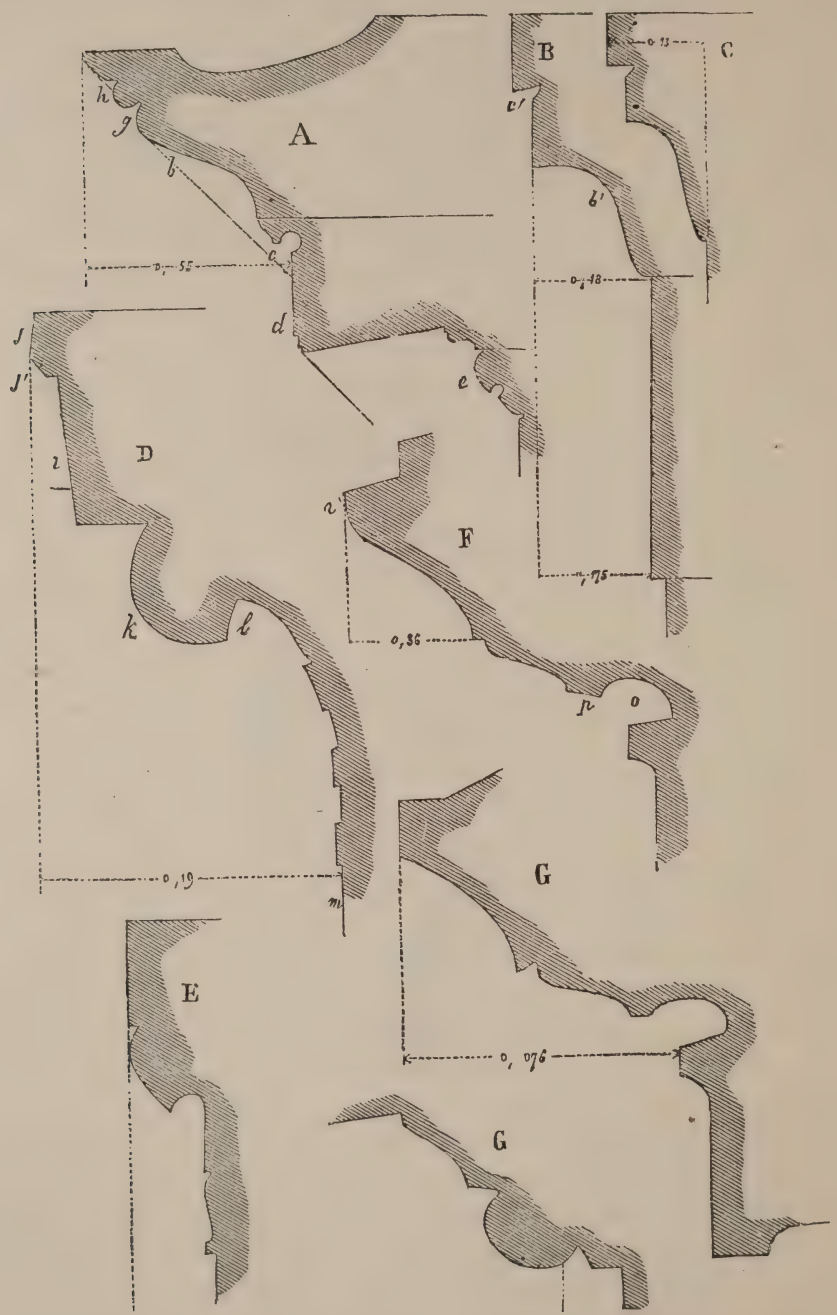
ditions, as is proved in the best mediæval as in the best Greek work. These functions being thus prescribed, the profile is reduced to three primitive dispositions, indicated by the three diagrams A, B, C, in Fig. 100, which are block-forms required by structural necessity. These block-forms admitted, it remains to give them the particular expression proper for the duties they are to perform and the positions they are to occupy. They are useful features, and should produce a certain effect by reason of their usefulness. The cornice A, if it is an exterior feature, must protect the wall which it overhangs, and be

Fig. 100.



so contrived as to throw the rain-water far from its surface; all the lower members of the cornice must be cut in such a manner as to have the appearance of sufficient strength to sustain the burden imposed upon them. The string-course B′ is nothing more than a cincture or band, indicating in the exterior either the level of a floor, or a change in the construction of a wall; it is a projecting course of masonry, which must seem strong enough to resist the superincumbent pressure or to mark a separation with emphasis. The archi-

Fig. 101.



trave or frame-moulding B panels a wall-surface or defines and gives value to the boundaries or jambs of an aperture. The base or plinth

C sustains all the weight, gives the whole structure a footing on the ground, and serves as a transition between the horizontal lines of the ground and the vertical lines of the building.

Let us glance for a moment at some of the profiles invented by Greek architects. Fig. 101 presents profiles of certain capitals and cornices. A is the profile of the exterior cornice of the temple of Castor and Pollux at Agrigentum. The under-cutting *c*, beneath the main crown-moulding *b*, is to prevent the rain-water from running down the face of the *corona d*, which is contrived to receive a broad mass of light and to act as the main protection of the wall from the wash of rains. The *bed-moulds* at *e*, under the projection of the *corona*, are accentuated by deep cuttings, in order, by strongly marked black horizontal lines, to relieve the mass of shadow thrown by the *corona*. The principal superior moulding (*talon* or *cymatium*) receives the light, falling at an angle of forty-five degrees, at the point *g*; and the extreme projection above this moulding is emphasized by a delicate line of shadow at *h*, between two lines of brilliant light; the black line afforded by the under-cutting at *c*, like those in the *bed-moulds*, serves to give life, transparency, and variety to the shadows cast by the superimposed members. This cornice thus not only satisfactorily meets a practical necessity, but gratifies the eye with an harmonious and carefully studied effect of light and shade.

The profile B of the capitals of the *antæ* or pilasters in the pronaos of the temple of Neptune at Pæstum, as it can receive no direct light, is arranged to obtain effect only from the reflected light thrown upward from the pavement, as indicated by the downward-facing curve of the great moulding *b'*; the sharp internal angle *e'* with its black line affords a line of demarcation between the two upper faces of the profile. The same remarks are true of the profile C, which crowns the architrave of the interior order.

The profile D of the *antæ* of the Propylæa of Eleusis is also disposed with a view to receiving reflected light only. Observe how the upper fillet *j* falls back in order to emphasize the inclination of the fillet *j'* and give greater value to the line of reflected light it receives, and that the surface *i* has also an inclination to receive light from below; observe, too, that the *torus k* is contrived by contrast of form and by position to increase the vivacity of the projection of the abacus above it, and is undercut sharply and boldly at *l* to obtain a well-defined shadow; the gradual curve from the wall-face or shaft

m upward to *l* affords a transition between the perpendicular and horizontal members by a gradual increase in the quantity of reflected light as it approaches the *torus*, and the movement of this curve is accentuated by successive horizontal lines of light and shade obtained by a sort of serrated outline.

The section E of a fragment of frieze belonging to the temple of Ceres at Eleusis also shows with what delicacy the Greeks made use of reflected light in their mouldings.

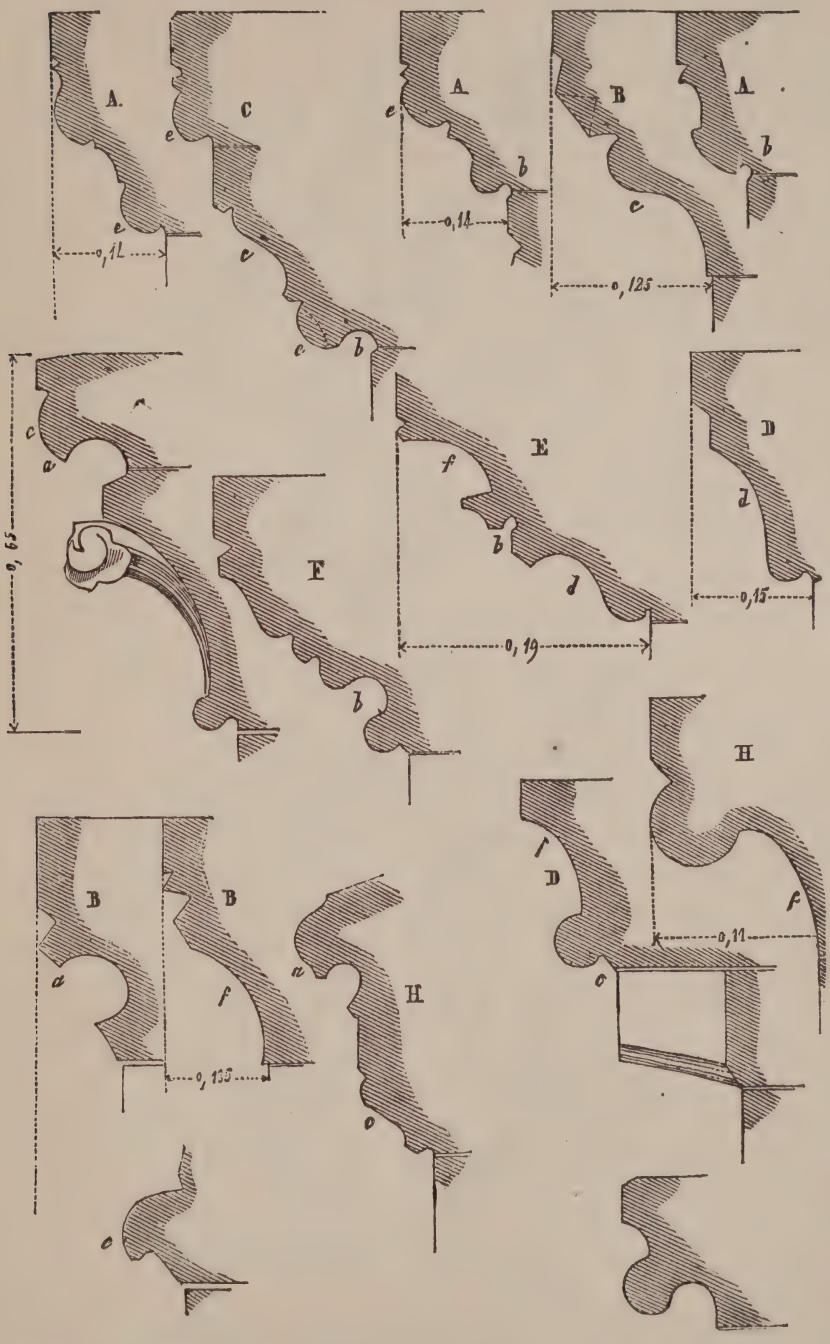
F and G G′ are exterior profiles from Pompeii. The section F is entirely plunged in shade, with the exception of the border *n* of the upper *cymatium;* but this mass of shadow is relieved by the strong reflected light on the fillet *p* contrasted with the deep line of unrelieved shadow supplied by the bold under-cutting *o*. The same remarks are true, even in a more marked degree, of the profile G G′ from the triangular forum.*

If the profiles of Roman cornices recall these in their mass, it must be admitted that in detail they exhibit neither the refinement nor the nice observation of effects which distinguish their Greek prototypes; the Roman architect abandoned those undercuttings by which the Greek so delicately emphasized his lines of light and gave transparency to his masses of shadows; the curves were badly studied and conventional, the general outlines were formalized and indecisive, and profiles were used indiscriminately for the interior and exterior. It is easy, on the other hand, to see that the lay architects of the twelfth and thirteenth centuries in France were influenced, in the composition of profiles, by the same principles as the Greeks. An examination of Fig. 102 will afford the proof of this fact. We find here the same delicate study of curves, the same fine feeling for contrasts, the same means used to obtain certain effects of lights, shades, and reflections, the same regard for the expression of the function of the mouldings. There is nothing here borrowed from Roman art, more especially from that Gallo-Roman art which, in respect to the execution of all architectural details, had become degraded indeed.†

* See the work of M. Uchard published in the "Revue d'Architecture" of M. Daly, Vol. XVIII. Pl. 49 and 50.

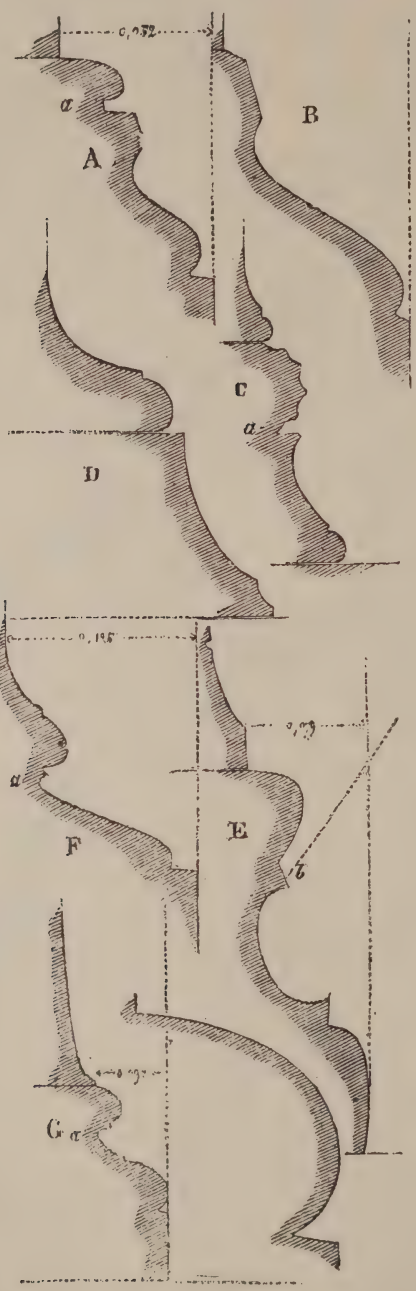
† The profiles A date from the first half of the twelfth century, and belong to the interior of the nave of the church of Vézelay (cornices or abaci of interior capitals). The profiles B are exterior, and are from the old tower of Notre Dame of Chartres (about 1140). The profile C crowns the exterior of the choir aisles of the cathedral of Paris (1165). The exterior profiles D are from the church of Montréale (about 1180); the profile E is from a balustrade in the interior of the church of Vézelay (about 1190); F is from the porch (about 1135), and G and H are also exterior profiles from the same church and belong to about 1235.

Fig. 102.



In these examples, the *larmiers*, or drip-mouldings, *a*, the hollow under-cuttings *b*, the cymatia *c* and *d*, the tori *e*, the cavettos *f*, all

Fig. 103.



recall the sweep of the corresponding Greek mouldings. In execution they were in like manner designed especially for the place they were to occupy and the function they were to fulfil; but, as the

atmosphere is less transparent in the climate of Western Europe than in that of Greece and Italy, clearness of reflected lights were not depended on to the same extent in studying for effects; the profiles were fuller, and the black lines, obtained by deep channels and undercuttings, were more frequently used to define, separate, and emphasize the projections. As the mediæval monuments were much more extensive than those of Greece, it was also necessary, in composing the mouldings, to take into consideration their greater distance from the eye.

As regards bases, the analogy is still more striking. Fig. 103 contains some profiles of Greek bases.* They were all evidently drawn to be viewed from above. They rested upon the ground and conducted the eye from the vertical to the horizontal planes. They were accentuated only by the delicate scotias or hollows *a*, or by the black lines obtained by deep channels to define the tori. Observe how in the profile E the upper torus is flattened on its lower section in order to disengage the fillet *b* and render it visible. Notice especially, also, the sweep of the lower torus *c* of the profile G, which is given on a larger scale at *c'*.

Let us consider now some profiles of French bases belonging to the twelfth and thirteenth centuries (Fig. 104); but first let us represent at A the torus or echinus of a Doric capital inverted, selecting one from the temple of Metapontis. Now the lower torus of the bases B of the choir-columns in the cathedral of Paris reproduces exactly the sweep of this echinus, which is a curve formed of three arcs of a circle. The resemblance is even carried so far as to repeat at *a'* part of the double fillet *a* in the Greek example. The upper torus of the base B is slightly flattened on its upper surface as in most of the Greek profiles (Fig. 103). The profiles C C', which belong to the columns of the old tower of Notre Dame of Chartres, certainly recall very vividly the Greek profiles B E in Fig. 103. The profile G belongs to one of the bases of the choir-columns of the abbey church of Vézelay.† The profiles at E plainly reproduce the Greek example at B in Fig. 103. Like the Greeks, these lay artists of the twelfth century considered that the tori of the bases

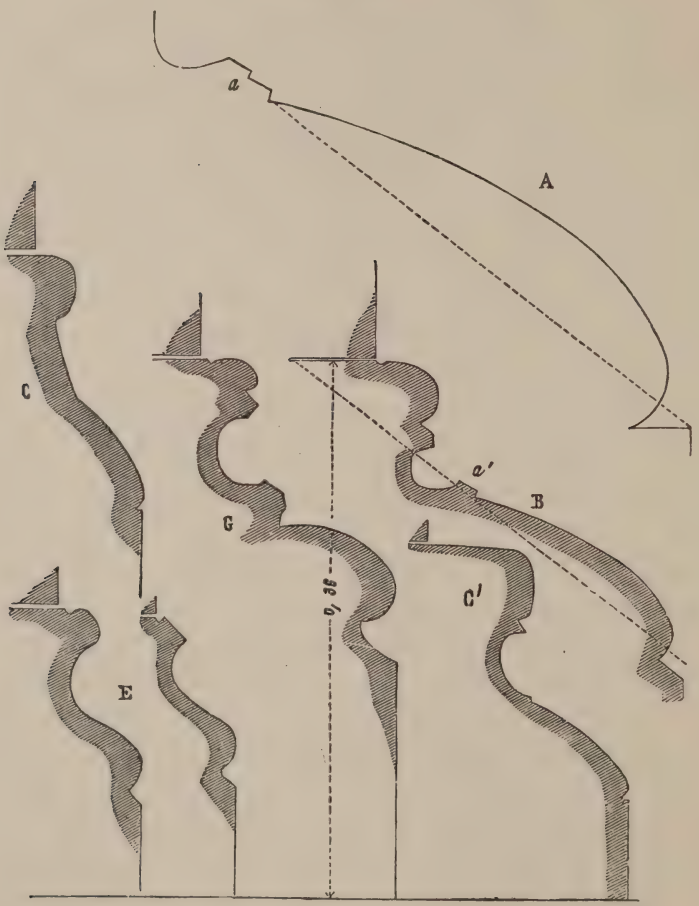
* A, from the antæ of the temple of Diana and of the Propylæa of Eleusis; B, from the antæ of the Propylæa of Eleusis; C, from the temple of Winged Victory at Athens; D, from the temple of Apollo at Bassæ; E and G from the triangular forum of Pompeii; F, from Pompeii.

† See in the "Dict. raisonné de l'arch. franç., du XI^e^ au XV^e^ siècle," articles BASE and GRIFFE.

should never be described by a single sweep of the compass, but that they should be so designed as to grasp the ground, as it were, firmly, and be relieved by the graduated shadows of a well-accentuated scotia.

In Fig. 103 we have given at C the profile of an Ionic base from the temple of the Winged Victory at Athens, the great torus of which is channelled horizontally; the same peculiarity occurs in the neigh-

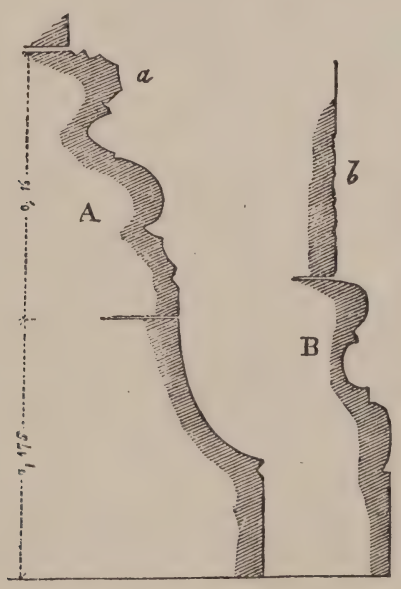
Fig. 104.



boring Pandroseum and in other Ionic buildings of the time of Pericles. It is also not unfrequent in French monuments of the twelfth century, particularly in the Southern provinces. Thus, Fig. 105 presents at A the profile of the base of a column in the town hall of Saint-Antonin (Tarn-et-Garonne), the upper torus being channelled horizontally, while it is evident that all the other mouldings of this

base have a very marked Greek character, as is the case also with the base B from the church of Déols (Châteauroux) and with many other examples of the twelfth century in that province. The shafts of the columns of Berry belonging to the same epoch are banded with delicate horizontal lines as indicated at *b*, — a peculiar treatment which occurs in shafts of the epoch of the Sassanides and even much later, as in the Alhambra at Grenada. It is well to observe here, while speaking of bases, that the artists of the twelfth century, when they rested circular tori upon square plinths, took care to occupy the angles of the latter with claws (*griffes*) to give greater apparent strength to the footing and fill out the profile. This precaution the

Fig. 105.



Romans never observed; it was a refinement peculiar to Greek and mediæval genius. I am aware that to associate such names as Athens and Saint-Antonin, Pompeii and Déols, as I have done, will sound strangely in some ears; but what shall I do? the monuments are there, and if I have misrepresented them they will bear witness against me.

But the remarkable analogies between Greek art and the mediæval art of France do not cease with the profiles; they exist also in the sculpture. Fig. 106, for instance, exhibits a capital in the chapter-room of the church of Vézelay (about 1160); this capital is in style

much more Greek than Roman, especially the Roman which was common in Gaul.* If a pupil of the school of Fine Arts should discover this capital in Macedonia or on the borders of the Bosphorus, the Academy would certainly pronounce it very beautiful; but it has the misfortune to be in its proper place supporting an undeniable and inviolate vault of the twelfth century only one hundred and ten miles from Paris.

Doubtless the artists who designed these profiles and carved these capitals, in the twelfth or thirteenth century in France, were hardly familiar with the monuments of Attica, Ionia, Magna Græcia, or Asia Minor; they were no archæologists, but they had relations of race with the old civilizations of the western parts of the East, and like them they reasoned, loved the beautiful, profited by traditions, and progressed. They adandoned the Roman structure, because it no longer agreed with the manners and customs of modern times, and formed a structure better suited to their needs, their materials, and their social state, and, simply by reasoning as the Greeks reasoned (for there are not two ways of reasoning on such a subject), they presently, in the execution of details, reached results analogous to those obtained by the Greeks of antiquity. Even admitting that the sculpture to which we have referred is due to an influence imported from the East, we should not lose sight of the fact that the East was filled with sculpture of every kind, especially with the debased sculpture of the latter days of the empire, and at least be just enough to the French mediæval artists to acknowledge that, in choosing their models, they chose those which most nearly approached the Greek sentiment. But, as I have lately said, in the first part of the thirteenth century, French architecture abandoned these imported methods of sculpture and frankly adopted the local flora, thus once more approaching the Greek prototype, not by imitating a Greek model, but by making use of a Greek principle, namely, the incessant application of new elements.

In the state of doubt and uncertainty into which the art of architecture has fallen in the present epoch, in the midst of so many conflicting doctrines all equally unreasonable, it becomes especially necessary to bring to bear upon the subject an attentive criticism, and to dis-

* If the reader will turn to Fig. 35, in the Sixth Discourse, he will be struck by the intimate relations evidently existing between the sculpture of this capital and that of the frieze of the Golden Gate of Jerusalem. Whether this frieze belonged to the time of Herod the Great or to that of Hadrian, it cannot be denied that it was executed by Greek artists.

Fig. 106.

cover, if possible, the nature of those principles by virtue of which the art has been developed in preceding ages. The fair conclusion deduced from what we have set forth is that Greek and Roman art, at bottom, have nothing in common; that if Roman architecture belongs to a grand cosmopolitan people, if it is the fair expression of that prodigious political civilization, it is not *an architecture of artists*, but the architecture of a universal empire; while, on the other hand, if Greek architecture is indeed lovely, and if we really admire and understand it as we claim to, we cannot at the same time admire Roman architecture; to adopt both is to embrace rigor of principles and indifference of principles, it is to believe and not to believe. We may also conclude that Roman art irrevocably declined, because it borrowed forms from every quarter without seeking to harmonize them with its system of structure; that Greek art has been, and will forever continue to be, an inexhaustible source of inspiration, simply because its vital principle consisted in the true adaptation of form to material and necessity; and, finally, that, as we artists of the West have more natural sympathy of mind with the Greeks than with the Romans, and, like the Greeks, have an ever-present love for truth at the bottom of our hearts, the domination of Rome in matters of art, under which, by one of those reactions so frequent in the history of the world, we are now laboring, must be merely temporary, and we must spring to a new life in art as soon as truth is relieved from the stifling grasp of the *last barbarian*.

TENTH DISCOURSE.

ON THE ARCHITECTURE OF THE NINETEENTH CENTURY.—ON METHOD.

IT must needs be confessed that modern architects, surrounded as they are by prejudices and traditions, and embarrassed by an habitual confusion in respect to their art, are neither inspired by original ideas nor guided by definite and well-understood principles; a fact the more plainly betrayed the more elaborate and complex are the monuments they are called upon to design and execute.

The libraries of our architects are full of works on the history and practice of art, and abound with drawings and engravings; yet if, in the midst of this affluence of the material elements of design, the artist is required to erect the most modest structure, his mind is at once closed to the reception and expression of new ideas for the sake of being correct in respect to his imitation of old ones, and refuses to draw any true inspiration from these accumulated but disordered resources. Evidences of nice appreciation and careful study, delicate and elegant execution, abound on all sides; but indications of really new ideas are rare indeed, and still more rare the rational observation of a principle. Our monuments seem to be bodies without souls, the fragments of some departed civilization, a language incomprehensible even to those who employ it. A thoughtless veneration for a certain class of forms has taken the place of originality of conception and creative ideas, and our artists remind one of those good people who believe that their salvation depends upon their repeating certain Latin prayers, which they do not understand and which they murder without scruple; although it may well be doubted if our artists have

even the virtue of faith in their scrupulous Latinity. Is it surprising that the public remains cold and indifferent in the presence of works thus void of ideas, and too often of reason, and that its appreciation is limited to considerations of cost? "This is very expensive, and so it must be beautiful."

Must this nineteenth century, then, come to a close without ever possessing an architecture of its own? Is this epoch, so fertile in discoveries, so abounding in vital force, to transmit to posterity nothing better in art than imitations, hybrid works without character and impossible to class? This sterility can hardly be one of the consequences of our social state, nor can it be satisfactorily accounted for by any bias of education, for no school of art could be powerful enough to bring about such a result in the midst of the intellectual activity and enterprise of the time. Why, then, have we not an architecture of the nineteenth century? We are building everywhere and a great deal; we are lavish of our millions; and yet, among all the innumerable structures raised on every side, it is very difficult to point out any distinguished for a true and really artistic application of the boundless resources at our disposal.

Since the French Revolution Europe has been in a state of active transition; it has been ceaseless in investigating nature and history, and has accumulated immense resources of material. Yet architects have been unable to give body and original expression to these varied elements, simply because they have wanted *method*. In the arts, as in the sciences, without method, our investigations, our discoveries and acquisitions, are in vain; with the increase of our material and intellectual wealth, we gain practically only embarrassment and confusion; our very abundance is a stumbling-block. The more knowledge we acquire, the greater the strength and accuracy of judgment needed to render this knowledge practically available and useful, and the more necessary it is to discriminate and classify according to severe principles.

But this state of transition in regard to art must, in the nature of things, be temporary; it must tend towards some definite result which can only be reached when, wearied with our profitless and unsystematic gropings among a chaos of ideas and materials, we at length seek to educe from the chaotic mass certain principles of order and to develop and apply them by the aid of sure and intelligent method. This is the task before us, this the labor to which we must devote

our energies with fixed determination, struggling against those deleterious elements of indecision and caprice which, like the miasmas which arise from all matter in fermentation, are the natural results of a state of transition.

The arts are sick; notwithstanding the energy of our vital principles, architecture seems to be dying in the very bosom of prosperity, dying of excess and the results of the debilitating régime under which its growth has so long been stunted. This malady is not a thing of to-day; its seeds were sown in the sixteenth century, and have been developing ever since; they were sown when architects, instead of making form the frank expression of the requirements they were called on to satisfy, and of the means of construction at their disposal, began to preoccupy themselves with the idea of adopting certain styles, most of which, after a very superficial study and without any effort at analysis, they borrowed directly or indirectly from ancient Rome. As soon as architecture thus lost the clew of truth, it went more and more hopelessly astray, till at length, lost in error, it has become merely eclectic, and, observing effects alone in historical architecture, without attempting to analyze them and ascertain the causes which led to them, it is now *pseudo-Greek*, now *pseudo-Roman*, and now *pseudo-Gothic;* it borrows inspiration alike from the fancies of the age of Francis I., from the pompous style of Louis XIV., and from the decadence of the seventeenth century; it has become so enslaved to the prevailing fashion, that even in the bosom of the Academy of Fine Arts, in those most classic of all shades, we have seen designs made up of the most fantastic mixture of styles, fashions, epochs, and means, yet betraying not the slightest symptom of originality; because real originality is one of the infinite number of forms in which truth manifests itself, and, without truth, it is fictitious, a mere caprice. Notwithstanding the efforts lately made to associate so many varieties of style, and to bring together so many conflicting influences, notwithstanding the capricious eclecticism with which the fancies of the moment are satisfied, the characteristic which strikes us most in modern monuments is *monotony*.

There are two ways of expressing truth in architecture: it must be true according to the programme of requirements, and true according to the methods and means of construction. To be true according to the programme, is to fulfil with scrupulous exactness all the conditions imposed by necessity; to be true according to the methods and

means of construction, is to employ materials with a due regard for their qualities and capacities. That which is generally regarded as a matter of pure art, namely, symmetry, the apparent form, this is quite a secondary consideration.

When the Indians built temples of stone in the form of structures of logs, when the Greeks of Asia Minor, the Carians or Lycians, imitated wooden tabernacle work in their monuments of marble, when the Egyptians, in building their vast monolithic temples, borrowed the form of an ordinary wall of mud plastered upon wattled reeds, they evinced a respect for the primitive arts which to us is very curious and instructive, but which it would be absurd in us to imitate. The Dorians and the Attic Greeks soon threw off these swaddling-clothes of their predecessors; and, as for the Romans, they frankly built concrete monuments, which in form were the absolute expression of the construction, and which obtained all their beauty from this expression of truth. The Romans were no children, innocently holding to a primitive tradition, but they were mature men who reasoned. The mediæval architects went further even than the Romans in this respect; instead of the concrete architecture, the moulded hive, they desired an architecture in which every force and thrust should be apparent and in which every constructive means should give birth to an architectural form; they adopted the principle of active resistances and equilibrium; in fact, they were inspired by the great modern philosophic idea that every individual, every work, and every object has a distinct part to play in the grand harmony of the universe. This progressive, logical labor of humanity ought to be continued to the end. Why should we abandon it? Why should we of the nineteenth century, like the Indians and Egyptians, reproduce the styles of comparatively primitive civilizations with material and means which, far from lending themselves readily to such childish tasks, constantly suggest new forms? What theocratic institution is it which constrains us to such an abuse of common-sense, to such a repudiation of the progress of former ages and the genius of modern society?

The nineteenth century, like all epochs in history which have been fertile in great discoveries and morally or materially progressive, has exhibited remarkable zeal in investigation. It has applied to the study of the sciences, philosophy and history, a fine spirit of analysis. It has elevated archæology to something more than a mere specula-

tive science, and now pretends to deduce from it a practical knowledge which may be of great benefit to the future. The axiom that "The youngest are the oldest" never could have been so justly applied as to our own generation. In the study of natural phenomena and philosophy, method has already produced considerable results, but as yet it has never been applied to archæology in its relations to art; materials have been accumulated to a vast extent, but have never been so classified and analyzed as to lead to any practical results. The attempts which have already been made to this end have been misdirected and premature, because they have not proceeded upon the broad basis of principle. It is therefore very essential to bring to bear upon our knowledge of the styles of the past a very rigorous method, and I do not see how we can adopt a better one than that laid down in the four precepts of Descartes, which were regarded by him as amply sufficient, if consistently and constantly observed.

"The first," said he, "is never to admit the truth of anything without thorough conviction; that is, sedulously to avoid precipitation or prepossession of judgment, and to accept nothing as fact which does not recommend itself so clearly and distinctly to my mind that there can be no possible occasion to doubt.

"The second is to divide the subject I am investigating into as many heads as it is capable of, to the end that its difficulties may be the more readily resolved.

"The third, so to order my thoughts that, beginning with the most simple and comprehensible objects, I may gradually ascend to the contemplation and understanding of the most complex, assuming a regular order of induction in those subjects which do not seem naturally so to arrange themselves.

"The last, always to make such thorough and comprehensive reviews of my studies as to prevent the possibility of omitting or not giving due weight to any of the considerations which bear upon them."

These precepts are admirably adapted to the consideration of the subject which now occupies our attention. Let us therefore apply them to the study and practice of art, so that we may at length find the architecture of our time, or, as art is long, so that we may at least prepare the way for those who are to follow us. In fact, if we bring to bear upon the study of past styles a critical analysis sufficiently attentive and intelligent to separate the true from the false, to

educe primordial principles from among all the accidents of tradition, we shall not only have divested these styles of the various influences which successively modified their true expression, but shall have discovered what that true expression is, and how it was evolved out of immutable principles; we can then accept such forms or expressions as those most nearly approaching the truth, and can admit them as types. If we would arrive at an immediate and practical application of the facts and ideas which archæology places at our disposal, this eliminating process is necessary; it enables us to distinguish the purely speculative study from that which may be bent to an actual and tangible result.

Thus, for example, I find that most of the older accessible monuments of Asia Minor are stone imitations of wooden forms; these monuments I can study as exceedingly interesting historically, but I can draw no useful practical conclusion from them. I see how a race of men, transported from a wooded region to a country without wood, preserved the traditions of their primitive arts. I prove the existence of the traditions by the evidence before me, but I must at the same time see that the traditions are contrary to the elementary principles of architecture. Again, if I examine the monuments of Thebes, I find there the strangest contradiction between the forms and the means of construction adopted; I find that men, by the exercise of prodigious mechanical forces, constructed in stone immense imitations of mud-plastered cabins. This fact is extremely curious and the result may be beautiful, but in the midst of a civilization like ours I seek in vain for any practical application of it. It is only when we tread upon the soil occupied by the forerunners of western civilization that we begin to discover traces of a perfect concord of form and principles, — a *style* in architecture. The Greeks were the first who, in the art of architecture, arose superior to tradition and brought to bear upon the subject a logical, rational, and inquiring spirit. Between the buildings of Greece, therefore, and those of India, there is all the distance which separates Plato from Buddha. But it is precisely because I admire Plato, that I would avoid repeating in this nineteenth century the monuments contemporary with him. For the Greeks, in submitting form to principles, showed us the way of truth in art; and the more we are delighted at beholding how the lovely fragments upon the Athenian Acropolis are the exact image and expression of the civilization of Athens under Pericles, the

more we should avoid imitating the forms of these fragments, since our social state and our public and private customs are essentially different from those which prevailed among the contemporaries of Socrates.

Thus, in studying the arts of the past, we must make an absolute distinction between the form which is nothing more than the thoughtless mechanical imprint of a tradition, and the form which is the immediate expression of a practical requirement, of a social state. The latter is the only one the study of which can lead to any practical results; and these results are not to be reached by any direct imitation of this form, but by observing how it expresses the application of a principle.

Applying the first precept of Descartes, therefore, to the study of anterior arts, it is clear that I must not admit any stone imitation of structures originally contrived for other materials, and must consequently reject, as based upon a false principle, every art which, blindly yielding to tradition, allowed itself to be betrayed into an untruthful expression; but it is evident, on the other hand, that I must attentively consider how styles have been developed out of the necessities, customs, and materials of nations. Under these limitations, archæological studies will be of great service to the architect in familiarizing him with the distinctive architectural expressions which have grown out of various civilizations and different conditions of resources, in enlarging his capacity for design, and rendering him apt to apply to practical use, not the actual form which he sees, but the principles which produced the form; in this manner, if we bring to bear upon the arts of Greece a critical and thoughtful investigation, we shall produce an original style of architecture based truly and firmly upon modern civilization.

Passing to the second precept, I should ascertain whether, among the various examples which I review, there are not certain immutable, independent rules, equally applicable to all, and arising either from social condition or from the employment of certain materials; in this manner I shall discover that harmony of proportions, for example, is established on certain geometrical formulas, which I shall find alike applied to styles apparently very different in character, as I have already had occasion to explain; I shall find, too, that, on account of a similarity of conditions, the necessity of providing against the same accidents or the desire of producing the same effects,

similar mouldings have been adopted by people centuries apart and having no knowledge of each other. Carrying on this train of investigation, proceeding always analytically, I shall presently arrive at the conclusion that, man being at bottom always the same, there is such an identity of character between the results of his intellectual activity, when he allows himself to be guided solely by a regard for truthfulness of expression, that the same forms of art are constantly recurring under his hand, although approached by very different paths. I shall also discover that such similar results may appear very different to the eye, and that this apparent paradox arises from the fact that they are deduced, by the same mental processes, from different conditions. Thus, I have at my command certain building-stones of considerable size and strength, monoliths, and I am required to build with them a monument of comparatively small dimensions. I must not of course be so unreasonable as to cut these materials into small fragments to construct my building; I therefore use some of them as posts or columns, and others as lintels or architraves laid upon them. But as these monoliths are difficult to transport, cut, and raise, I confine their use to an open structure, a portico, behind which I build up a close wall, a cella for example, in the construction of which I am justified in using such materials of smaller dimensions as I can more readily quarry, transport to the workshops, and lay up. I have formed the open structure of my portico with monoliths, because thus I best fulfil the conditions of stability, I avoid thrusts and the possibility of dislocations; but I have built up my wall with small stones because it is more convenient to do so, and the result obtained is sufficiently solid. Now my wall must be pierced with a door, and must have square corners; for the frame of this door I must select three large stones, or two posts and a lintel, and on the corners I must set on end long stones, or antæ, in order to keep the wall of small masonry firm and strong. I thus obtain a structure, in the form and fashion of which I have strictly observed the simplest laws of statics, and held closely to the conditions imposed upon me by the requirements of my programme and by the nature of the materials at my disposal.

But let us take an example with different conditions: I have to construct an immense building with small blocks of stone, as for economical or practical reasons I cannot quarry great monoliths. It is no longer a question of covering openings eighteen or twenty feet

high with lintels of six or eight feet bearing, of obtaining a room containing sixty or eighty superficial feet, but of bridging over openings thirty or forty feet wide, of combining and vaulting over galleries of various heights; in a word, the problem is, not to build a Greek temple, but a Christian church. It is clear that I must change the whole system of structure, without entirely giving up the use of monoliths and even of lintels, by means of which I propose to strengthen and correct my walls of small masonry, as the Greeks did, and thus enable them to resist the thrust of vaults and avoid the bad effects of settlings.

Instead of lintels of stone and ceilings of wood I must construct vaults, and I must seek such a system of vaulting as will most nearly resemble the conditions of the ceiling, not in appearance, but, as far as possible, in result, that is, by reducing the thrusts to a minimum and so dividing them that they shall bear only on certain chosen points of support; I thus follow the same course of reasoning as was applied by the Greek architects; I employ the same means and start from the same principles, but arrive at results very different in appearance, because I have had to satisfy a very different programme. There is nothing, moreover, to prevent me from adopting the same system of ornamentation and the same mouldings as the Greeks used, having ever in view, like them, the conditions and positions of their employment. Then, as regards the manner of buttressing or *staying* buildings, I observe that the Greeks, in their temples, used large stones on the outside and small masonry within; that they caused their angle columns to incline inwards slightly towards the centre of the structure, and depressed their horizontal lines in the middle, in order to refer all the thrusts towards the interior. But, having a much larger building to construct and the building materials at my disposal being much smaller and comparatively feeble, although I employ the same principle as the Greeks, I find that the conditions by which I am governed are such that mere depressions of lines and slight inclinations of piers are insufficient, and that it is only by a system of exterior abutting arches and buttresses that I can withstand the accumulated thrusts of the interior structure.

Thus, by bringing to bear upon my studies of ancient monuments a methodical spirit, I learn that, when the conditions are different, the application of identical principles must produce results different in appearance; and that, in order to arrive at these different results,

man, his genius being *one*, has used the same course of reasoning and in many details has fallen upon the same expression.

The third precept of Descartes treats of the necessity of a true or fictitious classification, and has a direct bearing upon the character of the studies by the pursuit of which we are to deduce an architecture. If in speculative archæology there is but one sort of classification — the chronological — admitted, it is otherwise when this science is cultivated with a practical aim. Classification must then be governed by the essential characteristics or natures of the examples which we review, and by whatever analogous applications of the immutable principles of art these examples may present. Thus, we see that there are but three architectures: wooden architecture, masonic architecture (perfected by the Greeks), and concrete architecture (developed by the Romans). From masonic architecture was born the lintel and post, the simplest expression of statics. From concrete architecture was born the vault and all its concomitants. Out of these two divisions the Middle Ages created a composite in which both systems were simultaneously felt; and this composite, from the very fact that it sought to conciliate two opposing or contrasting principles, gave birth to a new principle, of which architectural antiquity was totally ignorant, that of equilibrium, a principle particularly pliant to all the exigencies of our modern social state.

The fourth precept points out the necessity of extending the area of investigation as far as practicable, so that I may become familiar with various precedents and profit by acquired experience; for to concentrate my studies exclusively upon problems which have been already resolved, to confine myself to investigating the characteristics of an era in all its minute details, instead of accepting what is essential and proceeding to other fields, is a waste of time. But mere accumulation of facts is a stumbling-block for the architect without a methodical classification. Thus, I study alike Egyptian architecture and the architecture of the Roman Empire: but, in the former, I find that the forms adopted are often better suited to a structure of wood and clay plastered than to a structure of massive masonry; and, in the latter, that the principal merit and beauty of the style consists in the perfect harmony between the forms and the structure. I classify the facts and examples thus obtained accordingly, and my observation of them impresses me with the importance of using only those forms which most directly and plainly express the structure.

By thus classifying the results of extensive research in precedents, I hope to obtain such a feeling for purity and truthfulness of style as never to fall into that confusion of form and structure, that entire absence of individuality and frankness of expression, which renders so much of our modern architecture quite unintelligible and uninteresting.

Wearied with the unprofitable series of imitations, more or less correct, of anterior styles of architecture, a certain school has lately arisen in Paris, based upon the principle of composing a new architecture out of all the good features of these former styles; a dangerous error, for a *macaronic* style cannot be a new style. It may indicate some shallow knowledge and a certain amount of skill and spirit on the part of those who use it, but it can never be the manifestation of a principle or of an idea. Even the best examples of this sort of composition must remain isolated and sterile, suggesting the coming of no new era in the arts. Simple principles are alone productive; and it is worthy of remark that the more simple they are, the more beautiful and varied are their ultimate results. This subject has been referred to in the preceding Discourse in speaking of the organic creation and of vertebrate animals. Certainly, the main principle involved in the creation of such a reptile as the lizard is a very simple one; and yet between him and the ultimate complicated result, man, what infinite variety of development, always logically deduced and by transitions hardly perceptible! What more simple than to lay a stone horizontally upon two vertical posts? Yet from this simple principle what results of exquisite beauty were deduced by the Greeks! When the Romans somewhere found or somehow discovered the principle of the concrete vault, it was certainly a deduction from a very simple principle, yet what combinations at length grew out of this primitive conception! And when the western architects of the twelfth century added to this principle of the concrete vault those of elasticity and equilibrium, what marvels of structure were the result! Did they not in less than a century develop their system to the last limits of material possibility?

Here, then, are three architectures, the first two starting from two distinct and different principles, and the third adding to these a new principle; and from these three were rigorously and strictly deduced as many fully developed, definite, and characteristic styles, with all their innumerable possibilities of individual expression.

If we turn to the philosophic side of the question, we shall observe that the Greeks, divided, as they were, into little republics, chose that species of architecture which best suited their social state. Relatively insignificant in point of population, considering themselves superior to the rest of mankind, forming an exclusive and refined society, passionately fond of distinction and beauty of form, they naturally rejected everything which could vulgarize their architecture. In their eyes, grandeur did not consist in dimensions, but in choice of proportions and purity of execution; for all their monuments were small when compared with those of their Asiatic neighbors, and especially so when placed side by side with those of imperial Rome.

We shall observe also that the Romans, inspired by a social idea entirely opposed to that of the Greeks, assimilating races, and gathering them together under their prevailing standards, inviting or constraining them to become Romans, created an architecture well suited to their cosmopolitan spirit. They seemed to build monuments for the whole human race, and composed a system of construction equally available at Cologne or Carthage.

If the Greeks contributed anything to Roman architecture, it was, as we have repeatedly said, a covering, a dress, and not a principle. But in the twelfth century there was introduced at Paris, the centre of European civilization at that time, a modern element out of the degenerate traditions of the empire. It concerned itself with mechanical forces, and employed materials solely in view of their natural adaptabilities; it investigated the laws of equilibrium to replace the laws of inert stability, which alone were known to the Greeks and Romans; it sought to economize material and human effort; into the midst of unity of masses and orders it admitted variety of detail, that is to say, individuality within the limits of style, as also it admitted perfect liberty of means within the limits of unity of conception. Before long, breaking away from tradition, it obtained its ornamentation from the leaves and flowers of the field, curiously studied. It made of the great religious monument an encyclopædia of knowledge, instructing the people through their eyes. In the course of active observation and experiment it created in architecture, what Roger Bacon attempted in the sciences, a complete revolution. Every edifice was but one of the successive rounds of a ladder by which architecture sought to raise itself to the extremest heights of

an indomitable ambition; and, mounting ever, it finally attained an expression scarcely limited by the possibilities of the material elements at its disposal.

What would these mediæval artists have effected if the materials and means of modern times had been available to them? And what may we not effect, if, instead of tampering with all the styles, without examining their principles, we simply take up the theme where they left it, and develop it according to the theories which they found so capable and so productive? We cannot conceal from ourselves the fact that we are to-day submitting ourselves, in architecture, to the authority of the ancients, just as the schools of the thirteenth century submitted themselves to the authority of Aristotle, without examination or knowledge. But let us hear what the monk, Roger Bacon, had to say in 1267 with respect to this blind submission to the authority of a master: —

"Hardly half a century ago, Aristotle was suspected of impiety and proscribed by the schools. To-day, behold him elevated to the position of sovereign lord and master! What is his title? He was learned, some say; this may be so, but he did not exhaust all knowledge. He did what it was possible for a man to do in his time, but he did not touch the limits of wisdom. . . . . But, says the school, we must respect the ancients. Yes, doubtless the ancients deserve our respect, and it is proper for us to recognize our obligations to them for having prepared the way for us; but we should not lose sight of the fact that these ancients were but men, and that they were not unfrequently deceived; that the greater their antiquity the greater their errors, *for the youngest are in reality the oldest:* modern generations, since they inherit all the works of the past, ought to surpass their predecessors in knowledge."*

Can we use any better language with respect to that school whose aim is to teach us to forget all that the Middle Ages have taught us? This same Roger Bacon, this monk of the thirteenth century, worthy associate of the artists of his time, raising his voice vehemently against scholastic routine, said again in his *Opus Tertium*: —

"I call that experimental science which neglects arguments; for the strongest arguments can prove nothing so long as their conclusions remain unverified by experience.

"Experimental science does not receive truth from the hands of

* "Compendium philosophiæ," Cap. I.

any superior sciences; it is she who is the mistress, and they who are her servants.

"Indeed, she has the right to command all the sciences, since she alone certifies and consecrates their results.

"Experimental science is, therefore, the queen of sciences and the end of all speculation."

And further on:* "In all our investigations we must employ the best possible method. Now, this method is to study in their necessary order the parts of science, to consider first the part whose place is really and naturally at the beginning, the easiest before the most difficult, the general before the particular, the simple before the complex; again, as life is short, we must select for our study the most useful objects; and, in fine, scientific investigation should be conducted with all the clearness and certainty possible, without any alloy of doubt or obscurity. But all this is impossible without experience; for we have three methods of acquiring knowledge,—authority, reason, and experience: but *authority has no value if it is not proved;* it can make us believe, but cannot make us comprehend; it can impose itself upon the mind without enlightening it; and as for reason, we can only distinguish sophistry from demonstration *by verifying its conclusions with experience and practice.*"

This is the kind of reasoning employed by the men in the Middle Ages, who built monuments which we sometimes admire, but of which we know so little! Roger Bacon put into words the principles of the lay school of architecture, which was founded upon the last traditions of Roman art. *Method, examination, experience;* the entire system is comprised in these three words.

Let us return to the precepts laid down by Descartes: "Never to receive anything for truth which does not clearly and distinctly recommend itself to the mind as such." If this precept is applicable to philosophy, it is still more applicable to architecture, which rests upon material or purely mathematical laws.

Thus, *it is true* that a very long, wide, and high room should be lighted by larger windows than those appropriate for a chamber; the contrary is false. *It is true* that a portico, composed of a colonnade or arcade, is intended as a shelter from the rain, the sun, and the wind; the relations between the heights and widths of this portico must be such that those who walk beneath may receive this protec-

* Cap. XIII.

tion; the contrary is false. *It is true* that a door is made for exit and entrance, and the size of the opening of this door should be regulated by the greater or less number who habitually go in and out thereat; but, however dense a crowd may be, it never averages more than six feet in height, or, supposing it is composed of people bearing lances, banners, canopies, and the like, it never attains a height of more than twelve or fifteen feet; to make a door fifteen feet wide by thirty high is therefore absurd. *It is true* that a column is a support, not a decoration, like an arabesque or a frieze; if, therefore, you have no work for columns to do, you should not cover your façades with them. *It is true* that the object of a cornice is to protect the walls from the rain; to place a heavy projecting cornice in an interior, therefore, is unreasonable. *It is true* that a staircase is necessary to give access to the upper parts of a building; it is not a place of repose, but of passage; if, therefore, it is made more important than the rooms to which it gives access, it may be a magnificent staircase, but it is certainly a very unreasonable one. *It is true* that the thing which bears should be proportioned to the thing borne; but to build a wall or a series of piers of stones six or eight feet thick, simply to carry floors which might be sustained quite as well by a wall three feet thick, is to do an inexplicable thing, which satisfies neither my understanding nor my eyes, and is a prodigious waste of precious material. *It is true* that vaults ought to be stayed by buttresses of some kind; but it is a lie to use pilasters, engaged columns, and other buttresses when there is no thrust to be met by them.

It does not require any acquaintance with architecture to comprehend such plain reasoning as this, and by applying it to classic, mediæval, and modern styles, we may readily arrive at their real respective values. We shall find that, while Greek architecture can stand the test, that of the Romans often fails beneath it; that the French lay architects of the twelfth and thirteenth centuries rigidly submitted to these primitive principles, while we in modern times have been too apt to disregard them. The first Cartesian precept, based upon truthfulness of expression, thus supplies us with our first classification of architectural precedents. According to this, a little house in Pompeii, a city-gate, a fountain, or a well may assume a far greater value as a work of art than a palace. Again, the application of this test, while enabling us to distinguish between the true and

the false, will render us familiar with the various fashions of expression employed by the architects of the past; for the simple expression of truth in architecture is not necessarily high art; it should be expressed with skill and clearness, it should assume a beautiful or, at least, a perfectly fit form. The arts may remain obscure and repulsive, even when under the strict control of reason and logic; they may absolutely be reasoned into ugliness. But if this is sometimes the case, it is no less true that real beauty can only be obtained when developed in accordance with laws based upon reason. Every absolutely beautiful work must be the development of a rigorously logical principle.

Having directed our primary studies of the styles by the application of the first precept of Descartes, we should then pass to the second, — "to divide," said he, "the subject I am investigating into as many heads as it is capable of, to the end that its difficulties may be the more readily resolved." This is the strict and rigid analysis which belongs peculiarly to speculative study. Now a building of the old time and style is a complete, finished whole; to comprehend it in all its parts, we are therefore constrained to reverse the process of thought by which its author ordered and developed his conception. He proceeded from the primary idea to the apparent result, from the programme and the means available to the complete accomplishment of the design; we, on the other hand, must begin with the apparent result, and thence work our way back successively to the conception and to an understanding of the programme and the means; we must anatomically dissect the edifice, as it were, in order to arrive at a full comprehension of the relations, more or less perfect, which exist between the external appearance, by which we are first struck, and the means and reasons which lie hidden under this appearance and which determined its character. This second division of our studies is long, arduous, and difficult, but it is the best possible exercise for him who would learn to compose, to create. Analysis is the path to synthesis. But the more complicated a civilization has become, the more difficult it is to analyze its monuments, to elicit the motives which lead to their conception, the material and moral influences which governed their execution and which should contribute to insure their duration. If it requires but a short time and a comparatively slight effort to analyze a Greek temple, it is otherwise with a hall in a Roman bath, and especially so with a mediæval

cathedral; and since our modern civilization is very complicated, and since its monuments must have a far more delicate and complicated organization, our analytical studies should not cease with the dissection of the simplest works of antiquity, but should proceed successively to the consideration of more complex works, embracing more extended requirements, encumbered with more details, and embarrassed by more serious obstacles.

To restrict architectural education to a knowledge of a few fragmentary monuments of antiquity, or to imitate these monuments with more or less success, is certainly not the way to arrive at an architecture of the nineteenth century. It is far better to embrace in our studies that long historical series of efforts which developed in succession new principles, new methods, and new means, and to consider this series as a chain of human progress, all of whose links are riveted according to a logical order.

The third precept introduces us to application, for it consists "in so ordering our thoughts that, beginning with the most simple and comprehensible objects, we may gradually ascend to the contemplation and understanding of the most complex, assuming a regular order of induction in those subjects which do not seem naturally so to arrange themselves." Indeed, if by analysis we proceed from the complex to the simple, from the apparent result of the complete work to the means and motives which produced that result, it is an easier task, when we would design in our turn, to proceed by synthesis from the primary conception to the successive development of consequences. The primary conception or causative reasoning, which fixes the character of an architectural composition, includes the programme imposed and the material means available. The programme is but the enunciation of the requirements; but the means may be restricted or extended according to circumstances, and must exercise a prevailing influence over the design; the same programme may be carried out by very different means, according to the locality and the materials and resources at our disposal. Thus, an architect is called upon to build in different places certain great halls capable of containing two thousand persons. At A, materials of an excellent quality abound, durable stone, marble, or granite, and there are large sums appropriated for the purpose; while at B the resources are restricted, and brick and wood are alone available. Of course, these two rooms should have the same superficial area, as they are both intended to accommodate the

same number, but their appearance must vary with the resources disposable in each case. Although satisfying the same programme, the architect must adopt two very different architectural modes; and if, with his brick and pine wood, he undertakes, by means of mastics and color, to imitate a structure of stone or marble, he makes a very poor use of his art. To meet all the requirements of a programme with a given method of construction is not to produce a work of art; to obtain this result a certain character of form, a style, is also necessary; now, although form should proceed directly from the programme and from the construction, it may yet in any two cases differ materially; and doubtless the form or style best suited to our civilization of to-day is that which is most flexible and most docile, that which will lend itself most readily to the infinite practical details of our complicated existence. But where are we to seek for models, or, at least, for precedents of a style thus suited to all our modern exigencies? We shall perhaps be more apt to find it in Roman than in Greek antiquity; but if the question is concerning the use of iron, for instance, we shall find our motives, not among Roman precedents, but rather in the lay architecture of the Middle Ages, which seems almost to have anticipated the enlarged resources furnished by the industry, the mechanical ingenuity, and the immense facility of transportation of the present day. Are there not, for instance, very intimate relations between the great room of the palace at Paris, which was burned at the beginning of the seventeenth century, and the Library of Sainte-Geneviève, which was built a few years ago? And do not the classic appointments of this modern room, instead of adding to its merit, rather tend to disturb its unity by a mixture of foreign elements, a contrast of forms derived from two conflicting principles?

Now, assuming that we have ascertained how best to satisfy the practical requirements of our programme, and that our method of construction is determined on, how are we to proceed from the simple to the complex in composition according to the third precept of Descartes? First, by knowing the nature of the materials we are to employ; second, by using these materials with a strict regard for their nature, attributes, and capacities, so that the form which they are made to assume shall exactly express these attributes and capacities; third, by admitting into this expression a principle of unity and harmony, that is to say, a scale, a system of proportion, a method of

decoration, appropriate and significant as regards the destination of the edifice, without disregarding that variety which may be suggested by the different character of the requirements we are endeavoring to satisfy.

To know the nature of the materials we are to employ is not only to know the strength and texture of stone, the pliability and toughness of forged iron, the rigidity and brittleness of cast-iron, etc., but it is to be able to anticipate the effects these materials are capable of producing under certain conditions; it is to comprehend thoroughly, for example, the essential difference of expression between a monostyle set up on end and a pier built up of courses of masonry; between a wall faced with broad, flat slabs of stone and a wall of solid, square ashlar; between an archivolt composed of stones whose upper surfaces are concentric with the lower, and one whose stones are built in with the level courses of masonry above; between a flat arch and a monolithic lintel; between an arch composed of many successive ranges of voussoirs and one composed of but a single range; between the forms appropriate to a masonry laid up with square, closely fitting joints, like that of the Greeks and Romans, and the forms suited to a looser masonry laid up in beds of mortar; between an exterior door-frame or window-frame composed of two monolithic jambs in a wall of plaster or concrete and one whose jambs, under similar circumstances, are built up in horizontal courses, the one being a good and effective architectural form, because intelligible and reasonable, and the other offensive to the eye because suggestive of weakness. A knowledge of the capacity of materials for expression includes, in fine, an appreciation of the proper relations between the joints of masonry and the mouldings. To employ materials, not only with a due regard to their strength and adaptability to the duties they are to perform, but to give to them the form and style which shall most exactly and elegantly express this strength and adaptability, is, therefore, one of the most important points of composition; it enables us to give to the simplest structure a style and a particular distinction. A mere quoin or chain of stone in a wall may thus become an expression of art. A column or pillar, fashioned with a studied regard for the nature of the material of which it is made and the duties it has to perform, satisfies the most fastidious eye. A capital whose mouldings are designed with an intelligent consideration for its position, surroundings, and func-

tion must be a beautiful object. A corbel designed to express the support it gives must produce a better effect than one so formed as to seem too weak for its function.

To admit a principle of unity and harmony into the expression of the various requirements indicated by a programme, that is to say, a scale, a system of proportions, a method of decoration, which shall be appropriate and significant as regards the destination of an edifice, and at the same time not to disregard the variety suggested by the different nature of the requirements to be satisfied, — this is another important point in architectural composition, one calling for the best intelligence of the artist. When the conditions of the programme have been satisfied, when the system of construction has been determined on, when in our design we have reasoned out such a form or style for each of its parts as shall best express its function and the materials of which it is made, there remains to bring the whole into harmony by the application of those principles of unity which must control every work of art. This is the rock upon which nearly all architects have split since the sixteenth century; they have either unreasonably sacrificed convenience and disregarded the most judicious use of material for the sake of an harmonious form, or, satisfying all the conditions of their work, and employing their material most judiciously, they have been unable to harmonize the whole so as to produce a unity of expression. But the former error is that into which modern architects have been most apt to fall. The immeasurably vaunted architecture of the close of the seventeenth century in France, that which still remains the mistress of design, presents us with the most exaggerated examples of this deplorable system.

In no country and at no time has fanaticism for symmetry, for the absolute *order*, been carried so far as in the reign of Louis XIV. It was the royal mania, and everybody yielded to it; the sovereign found, in a certain architect of ordinary abilities, who had usurped the name of artist and who was puffed up with inordinate vanity, a man ever prompt to yield to the caprices of his royal master and to flatter his fancy for ostentatious uniformity, and who thus built up his own fortune on the ruins of the true architecture of France.*

* In this connection it is well to cite a curious anecdote reported by Saint-Simon. It affords an insight into the taste of Louis XIV. for architecture: —

"The king was very fond of his buildings, and had a feeling for exactness, proportions, and symmetry, without the taste to make him a good critic, as we shall presently see. The château of Trianon had hardly arisen above the foundations, when he found fault with a certain window

One of the most striking examples of this disregard for good sense, and therefore of good taste, is the château of Clagny, considered a masterpiece in that reign, built by Hardoin Mansard (an architect of ordinary ability, to whom we shall presently refer). Certainly the programme to be satisfied was a fine one, and the site agreeable; but, for the sake of obtaining a symmetrical architecture, the architect made sad work of his opportunities. Thus, the great gallery in the right wing has the same order externally as the left wing, which contains only bedchambers and unimportant rooms. The windows which give light to the dressing-rooms are identical in character with those in the main building belonging to the great state apartments. The façade of the chapel repeats that of the bath, to

on the first floor then in process of construction. Louvois, who was naturally brutal and had been too much spoiled by flattery to suffer criticism even from his master, disputed the point boldly and obstinately, and maintained that the window was correct. Whereupon the king turned his back and proceeded elsewhere about the works.

"The next day he met Le Nôtre, a good architect, and famous for a taste in gardening which he had introduced in France and which he had carried to the highest pitch of perfection. The king asked him if he had visited the Trianon; on receiving a negative reply, the king explained the fault which had offended him, and told him to go and look at it. The next day came the same question and the same reply; and so with the day following; the king saw plainly that Le Nôtre did not dare to expose himself to the pain of deciding in favor of Louvois. He therefore, in a pet, required Le Nôtre to meet him and Louvois at the works the next day. There was no way of evading the command.

"The following day, then, found all three at the Trianon. The question of the window was raised, and Louvois disputed as before; Le Nôtre said not a word. The king therefore ordered him to take a line and measure, and to report the result. While he was thus employed, Louvois, furious at the application of this test, did not seek to conceal his displeasure, and continued to maintain with feeling that this window was quite parallel with the others. The king awaited in silence, but not without misgivings. When the examination was finished, he demanded of Le Nôtre the result; Le Nôtre hesitated. The king sharply commanded him to speak out, and Le Nôtre thereupon avowed that the king was right, and the fault existed as he had stated. He had hardly finished speaking, when the king, turning to Louvois, reproved him for his obstinacy, and said that, but for his own persistence in his opinions, the thing would have been built crooked, and he would have been obliged to tear it down as soon as completed. In short, he rated the architect soundly.

"Louvois, incensed at this result, and mortified because the courtiers, workmen, and valets had been witnesses of his disgrace, returned home in great anger. There he found Saint-Pouange, Villacerf, the Chevalier de Nogent, the two brothers Tilladet, and some other intimate friends, who were much concerned at seeing him in this state. 'The fact is,' said he, 'I am lost with the king; judging by the way he has treated me about a mere window, my only safety hereafter is in a war which shall distract the attention of the king from his buildings, and leave me absolute master over them; and, by ——, he shall have a war.' In fact, he kept his word, for, in a few months afterwards, and, despite the king and the other powers, he managed to carry out his threat, and to absorb the king in a general warfare. This ruined the internal prosperity of France, and did not improve her external relations, notwithstanding the success of her arms, but, on the contrary, was fruitful in national disgrace."

Of course Saint-Simon had a bitter tongue, he hardly admired Louis XIV., and this window was scarcely the primary cause of the war which was terminated with the peace of Ryswick; the anecdote, however, at bottom, has all the elements of truth in it.

which it corresponds; and, to crown this chapter of inconsistencies, the orangery is a fac-simile of the opposite range of buildings which contains only servants' rooms. Without doubt, the conditions of the programme have been observed after a fashion, but with what singular concessions to that symmetry which constituted what was then regarded as the majesty of an architectural composition! In the principal story the blunders are still more shocking, and all the domestic comforts and necessities of the château are sacrificed to this mania for monumental architecture. The staircases, unexpressed in the general exterior mass, are small, dark, and inconvenient; the great hall of the central building absolutely interrupts all direct circulation on the same level between the two wings; partitions abut against windows, and pilasters occur where they have no coincidence with the interior arrangements.

This château is a fair type of the princely residences of that period. In every instance there is nothing in the apparent architecture externally to indicate the interior disposition of apartments. Certainly, neither the Greeks nor the Romans, whom this very school presents to us as excellent artists and worthy of careful imitation, would have committed such palpable errors and so misunderstood the purposes of the art; nor would the builders of the Middle Ages. This may be proved by a glance at the antique *villas* or the French châteaux up to the sixteenth century.

The aspect of unity, which since that time has prevailed in architectural works, has therefore only been obtained by torturing the programmes and disregarding truth of construction; but, on the other hand, wherever any attempt has been made to shake off this tyranny of symmetry, it has of late been too apt to result in the opposite error, a sort of disregard of style, anarchy taking the place of tyranny; in fact, a regard for principles is equally necessary, whether we propose to reform an old art or to create a new one; they who do not know how to protect themselves from a tyranny cannot govern themselves. Unity, therefore, in modern architecture, is only uniformity, and, if uniformity has been avoided, the result has been apt to be disorder. Now it cannot be too often repeated, that the classic as well as the mediæval architects submitted their works to the principle of unity, without ever falling into the error of uniformity. Every monument, no matter how little it may differ from others as regards destination or construction, should have its own traits of

individuality, and yet it should be so treated that the period of art to which it belongs should be perfectly recognizable, not only in its general design, but in its most unimportant details. This is the result of a due regard for the principles of unity. If archæological studies did nothing else than enable us to distinguish between the different styles of the past by simple observation of the philosophy of their development respectively, they would render an essential service to modern art, which, in the absence of such observation, is apt to make an incongruous mixture of forms according to the fashion or caprice of the moment, with no regard for that unity out of which alone can arise a distinctive style.

"This principle of unity and harmony in the expression of the various requirements indicated by a programme" is, therefore, neither symmetry nor uniformity, still less an undigested mixture of various styles and forms which is unintelligible and unsatisfactory, however skilfully made; but it is, in the first place, a strict regard for *scale*, that is, the proper relation of the various parts of a whole to a unit of admeasurement. The scale adopted by the Greeks in their temples was not an absolute but a relative unit, known as the *module*, although, in their dwelling-houses, it is certain that they used the absolute unit, which is the size of a man. Now the result of the application of the relative unit, the *module* or half-diameter of the column, was necessarily an harmonious relation between the whole and the parts.* Thus a great Greek temple was a little one magnified. In the small, as in the great monument, there were the same harmonic relations, — a perfectly logical result in cases like these, in which the order was itself the monument. But the Romans, having programmes much more extensive and complicated to fulfil, immediately admitted into the composition of their monuments an absolute scale, that is, an invariable unit; but, instead of taking the height of a man for this invariable unit, they used an order as their point of departure. Thus, in their great structures, there was always somewhere a little order to serve as a scale and to give an idea of the actual dimensions of the whole. Frequently, as on the exterior of the baths of Dioclesian at Rome, this little order had actually no other function to perform than to furnish a standard of comparison so that the beholder might appreciate the grandeur of the masses. So also with the niches filled with statues, so profusely spread over the

* See article ECHELLE in "Dict. raisonné de l'arch. français."

interior and exterior walls of their monuments; the object of this detail was not only decorative, but exhibited a tendency of the Romans towards an absolute scale, to recall the real dimensions of their buildings.

With the Byzantine architects the column became the absolute scale, whatever might be the size of their buildings in other respects; although differing slightly in actual dimensions, it practically served as a standard of comparison to the eye. But among the mediæval architects the only scale admitted was man, every part of their structures being composed with reference to the height of the human figure,* and hence, necessarily, the unity of the whole. With a point of comparison so familiar, the real dimensions of their edifices became particularly appreciable.

If we should adopt in our architecture this principle of the human standard of admeasurement, together with such a system of geometrical proportions as was evidently used by the architects of antiquity and of the Middle Ages, we should unite two elements of composition which would compel us to remain true as regards the expression of dimensions and to establish harmonious relations between all the parts. The mediæval architects, therefore, were in advance of the Greeks, in that the latter admitted only the module and not the invariable scale. Why should we, in continuing to use the module, voluntarily abandon the larger system invented by the artists of the Middle Ages?

The principle of unity in architecture is also put into operation through the system of ornamentation, which, although an important element of architectural composition, was never regarded, in the best antique periods, in any other light than as the dress of the body, after the latter had been completely formed. But the ancients admitted two methods of ornamentation. The one consisted in covering, without disturbing the constructional form, with a sort of tapestry, as it were, more or less rich; this was the system adopted by the Egyptians, whose ornamentation proper had no outline or relief (statuary excepted), but, like an embroidered stuff, only enveloped the geometrical form, expressing itself in incised figures and devices. The other method, on the contrary, was, as it were, independent of the architectural form; according to this, decoration was attached or

* See the article of M. Lassus in the "Annales archéologiques," Vol. II., *De l'art et de l'archéologie.*

applied to this form so as to modify the constructional outline by its own projections and contours. Instead of an embroidery spread over the main mass, it was composed of ornaments in relief, such as leaves, flowers, and other compositions taken from the vegetable and animal kingdom. The Greeks, who borrowed a great deal from the Egyptians as well as from the Asiatic races, with whom architectural decoration was rarely more than an embroidery, at first followed these examples closely; but their judgment, ever correct, soon convinced them that this method of ornamentation, however subordinate it was made to the form it decorated, had a tendency apparently to alter that form, or at least destroy its character. It was not long, therefore, before they introduced, in place of an incised, or flat, a bolder sculptured ornamentation, like an independent accessory *attached* to the form, but not interfering with the integrity of its outline. But they employed sculptured ornamentation with admirable self-denial and extreme sobriety. It was limited to the decoration of a few members of the cornice with beads or pearls, eggs, and closely clinging water-leaves, sometimes admitting the application of metallic forms and bas-reliefs strictly enclosed within rigid architectural boundaries, such as friezes; and when, at a later period, they composed the Corinthian capital, for example, it was a basket, as it were, enveloped in leaves and stems of acanthus, longwort, or fennel. This system of applied ornamentation recommended itself to the ostentatious taste of the Romans, and they soon carried it to such excess as absolutely to mask the architectural form under a prodigal abundance of foliage, garlands, arabesques, arms, trophies and symbols of all kinds. The Byzantine artists affected a compromise between the two systems, but evidently favored that which enveloped without concealing the form; in the offshoots of their architecture, however, especially in that known as the Arabic, Oriental influences were profoundly felt, and, under those influences, the ornamentation in embroidery again prevailed. But in France, at the close of the twelfth century, it was abandoned in favor once more of a sculptured decoration, exclusively taken from the local flora and affixed to the architectural form as if glued or nailed to it; yet it was so managed as never to contradict the form, but rather to aid in developing it, — a fact easily to be seen on inspecting the capitals of the interior columns of the cathedral of Paris. In no architecture, not even in that of Greece, has applied ornamentation ever been treated with more

skill and discretion than here; far from masking or falsifying the form to which it is applied, it materially assists in its expression.

To undertake to conciliate these two systems of ornamentation in architectural composition, or, in other words, to decorate one part of a design with embroidery and another with attached ornaments, one part with sunken arabesques, and another with ornaments in relief, is to cancel the good effects of both and to offend against the principle of unity.

The last precept laid down by Descartes in his method of study is, he says, "always to make such thorough and comprehensive reviews of my studies as to prevent the possibility of omitting or not giving due weight to any of the considerations which bear upon them." If this precept is useful in its application to philosophical investigations, it is even more essential to architectural composition. The designer has by no means completed his work when he has arranged his plan in the most convenient and satisfactory manner and expressed its characteristics in his elevations; all the parts must be harmonized and bound together by a prevailing idea; all the materials he uses must be used judiciously and with a careful regard for their respective attributes; they must have neither too much strength nor too much lightness; they must indicate their function by their form; stone must appear plainly to be stone; iron must seem to be iron, and wood, wood; and at the same time all these materials must be treated so as to combine without offending the principles of unity. This was an easy task to the Romans, when they used only a concrete construction with clay, bricks, or rubble, and a *révetement* of marble; but it is far otherwise with us, who have to employ materials of various or even conflicting properties, and to give to each of them the form which most naturally expresses these properties. Now, inasmuch as the builders of the Middle Ages seem, as I have already said, by the comprehensive and pliable character of their works, almost to have had a prescience of the larger resources of our own time, a *thorough review*, not only of all architectural precedents, but of those especially which were furnished by these active and intelligent artists, is quite indispensable, if we would make a true progress and not fall behind our predecessors. The works of the mediæval school, at the moment of its first development, present a cohesion so complete, a mutual relation so intimate between the requirements, the means, and the form or style, they supply us with so many resources ready-made

by which the peculiar difficulties inherent in modern programmes may be resolved, that we can nowhere else find precedents better fitted to facilitate the task before us. But to try to obtain from the good architecture of Greek or even of Roman antiquity anything more than a few very simple principles applied with an inflexible logic, to undertake to copy, imitate, or even to be inspired by the actual forms which were developed from these principles, is voluntarily to expose ourselves in our works to contradictions so much the more offensive as our requirements become more complicated and our resources more extended. During the seventeenth century there was a prevailing mania for Roman architecture, and every one was willing to suffer all imaginable inconveniences for the sake of being Roman. Not to incommode Roman art or to interfere with its development, every one was ready to incommode himself, with the best faith in the world. However unreasonable this passion, and however bad its results may have been in the architecture of that period, it was nevertheless a faith, and as such deserves respect. But it must be confessed that we are much more sceptical as regards art than people were in the reign of Louis XIV., and there is no one in modern times so infatuated with Greek or Roman art as to be willing to sacrifice for its sake the least of his daily comforts or to submit to the slightest inconvenience in the cause of classicalism. Why, then, this constant and bad copying of antique forms? What have we to do with them? They embarrass the artists, for they have not that pliability required by modern programmes; they are very expensive; the public has no interest for or sympathy with them; they adapt themselves but awkwardly to many of the necessities of modern times; their application and development encounter constant and irremediable difficulties in our manners, customs, and habits of construction. Why, then, this persistency in preserving them, or rather in so forcing their application? Whom do we please in thus devoting enormous sums to reproduce forms so unreasonable and so out of place? Is it the public? They do not comprehend, and hardly notice them. And if it is to satisfy some twenty people we know of, we pay a very high price for the imaginary luxury we give them. Are we compelled to this course by respect for art? If so, for what art? For a false and denaturalized one, reduced to the condition of a language which no one understands, and deprived even of the benefit of the very rules out of which the precedents which we worship were

first developed. When an exact and faithful imitation of the Parthenon was erected at Montmartre, near Paris, it was erected, I admit, out of respect for art, to preserve to the world a type of eternal beauty, the original of which had been mutilated and destroyed; it was then a question of a museum, of a perpetuated text. But when Greek Doric columns are engaged between the arches of a Roman arcade in the second story of a railway terminus, covered with mortar or plaster and smoothed down, with lintels of jointed masonry, there is certainly neither reason, utility, common-sense, nor object in such an inconsistency. Instead of being a mark of respect for art, is it not rather an indication of disrespect or contempt? Who would engrave a verse of Homer upon the walls of a warehouse?

We shall never have a true modern architecture until we have learned to be consistent, to appreciate precedents according to their relative value, and everywhere "to make such thorough and comprehensive reviews as to prevent the possibility of any omission"; until, in fine, we shall have good and substantial reasons to set against the capricious fancies of amateurs, for reason must, in the end, prevail over all obstacles.

Let us, then, examine our methods and the habitual forms of our architecture, let us compare them with those of antique architecture, let us see if we have not lost our way and have not to retrace our steps, in order, at last, to find that new style so loudly clamored for by the very people who would shut us out from the only means of reaching the desired end.

I will not in this connection consider Greek architecture, — although it is the custom to steal Greek motives and apply them indiscriminately to modern structures, which have no relations with those of Greece, — but will proceed at once to look into the architecture of Rome under the emperors, which, in fact, is the only one which has seriously influenced the design of our monuments since the seventeenth century, and the only one which, in certain particular cases, can offer us practical examples. When I analyze a Roman monument, like the Coliseum, the baths, palaces, theatres, I am at first struck by the powerful rational structure combined by men of thorough experience. This construction consists of masses of rubble or brick embedded in strong mortar, the whole forming an absolutely homogeneous concretion, with a facing and sometimes with a base, as at the Coliseum, of regular stone masonry. But although mortar

is the all-important and binding element with the shards, rubble, or brick of the Roman wall, there is not a particle of lime in the joints of the masonry which covers it. Roman structure, therefore, combines two distinct processes: the one derived from concretions of rubble or brick with cement, like excavations out of solid limestone; the other, derived from Etruscan or Greek masonry, which envelops or faces this cellular body. However inartistic the Romans were, they never confounded these two systems; they married them together, but they never lost sight of their respective characteristics. The Coliseum is but a concretion of cells, made solid with cement, sustained and enveloped with a masonry of cut stones laid without mortar; but this masonry takes forms suited for stone construction, while the concrete masses only affect forms proper to a moulded material. This mixed system, however, is not always admitted. Often, as in the baths of Diocletian and of Antoninus Caracalla, or in the basilica of Constantine at Rome, the entire mass is in concrete, clothed only with an envelope of brick, a single block, as it were, variously hollowed, and finally coated (without regard to the construction) with slabs of marble, encaustic tiles, and mosaics. If, in any instances, stone actually participated in the essential construction, it was used in the form of monolithic columns of granite or marble, or of entablatures deeply embedded under the springing of the vaults, thus seeming to give solidity to the whole structure, and having actually the effect of correcting and stiffening the brute and passive masses of concrete. But if the Romans gave to a rubble pier in one of their great vaulted rooms a section of twenty-four superficial feet, even when it was stiffened and buttressed by an engaged granite column, they were not so foolish as to give the same section to this pier when it was built of regular masonry, nor did they add to this stone pier any unnecessary stiffening of a monolithic column, since, formed as it was of regular courses laid up with dry joints, there was no danger of any settling. Although having at their command all the financial resources of the known world, they never, in respect to construction, indulged in any useless expense, but exercised a wise economy of material, and did honor to that which they employed. If they built a basilica, to be covered with a timber roof, they raised monolithic columns of granite on marble bases, and laid upon these columns capitals and lintels of marble; they did not waste their time and money by laying a solid wall of masonry upon this open col-

onnade, but, forming discharging arches of brick over the lintels, so as to concentrate the superincumbent weights over the columns, they built their wall above of concrete or brick, content with covering its inner and outer surfaces with a facing of thin marble or stucco. If neither marble nor stone were available, they either constructed their basilica without side aisles, substituting close walls for open walls on either side of the nave, thus avoiding the necessity of having columns, or, retaining the aisles, they built the side walls on arcades of brick or rubble in cement.

In fact, we must see that the principal value of Roman architecture consists in its judicious employment of materials; power and sagacity are its prevailing expressions, and if it is imposing in its ruins, it is not only on account of its own inherent qualities, but by reason of the evidence it exhibits of the grandeur of those who gave it existence.

Because the art of the sixteenth century developed some charming fancies, we should not for this reason accept it, as we do, for a model; the architecture of Louis XIV. is not wanting in majesty or grandeur, but it is not by imitating it and reproducing its characteristic expressions that we can compose a style appropriate for the nineteenth century. To obtain a real and desirable novelty, we must seek for and adopt with peculiar care the true principles of art, we must classify the works of the past with such rigorous scrutiny as to render them available to our use according to their relative value; to this end we must study and review them without prejudgment for or against; we must, once for all, dismiss the prejudices of the school which is ruining our art and which maintains its predominance only by exacting a blind submission to dogmas which it does not even condescend to explain. I am confident that in time we can overthrow the obstacles which impede the progress of knowledge and stand in the way of a judicious and impartial analysis of the past. For these thirty years how many young artists have we seen losing precious years of study in aimless and resultless effort; and if some few spirits, more supple, more happy, or more favored, have reached high positions, what have they produced? Affected imitations or confused mixtures of reminiscences, betraying, under a profusion of details, poverty of invention, absence of ideas, and an entire disregard for any analytical investigation of precedent. The sum total of the whole, so far as the public is concerned, consists in incommodious buildings in which the practical requirements which

called them into existence are neither studied nor fulfilled; which do not appeal to the sympathies of the multitude nor educate their taste; which entail enormous expenses, and create sometimes astonishment, but never a genuine admiration.

We have our faults, but we also possess a spirit of reason, sound common-sense, and are passionately fond of variety. But our quasi-official architecture is absolutely unreasonable; it does not endeavor practically to meet the plain necessities in each case, but is governed by that spirit of uniformity which is supposed to be one of the elements of the beautiful. It would seem that, in architecture, the grave Minerva had given place to the goddess of ennui, and that, to be truly classic, we must sacrifice to that wan divinity. The façades of our monuments, symmetrical in spite of the varied accommodations they are expected to give, reproduce a hundred times the same column with the same capital, the same window with the same decorations, the same arcade, the same frieze extending along weary lengths of monotony.

I admit that the architect has an advantage in this, and that fools admire this persistent and imposing repetition of a fashion; but we cannot disguise the fact that the public — the great, active, and intelligent public which throngs our streets — is fatigued at these unexpressive roods of architectural repetition, and sighs after some accident or incident to break what seems an unmeaning succession of exaggerated classical perfections. Now it is worthy of note that nothing could be more picturesque or more abounding in agreeable surprises than the assemblage of principal buildings in an ancient city of the Greeks or even of the Romans; and that, during the Middle Ages and the Renaissance in Western Europe, a desire for variety and individuality of expression was manifested at every turn. It is owing to the reign of Louis XIV. that these traditions have since then, under pretext of majesty, given place to the weary monotony of modern architecture. But if majesty was a desirable thing to express in the reign of the great monarch, it has nothing in common with the manners and tastes of the nineteenth century. We no longer wear the colossal peruke nor put the lace of Alençon on our cuffs. We have habits of comfort, a public and private hygiene which do not accord with that pomp, that unreasonable ostentation, that style made up indiscriminately from precedent, which is set forth in the palaces and public buildings of modern times.

If we would really have an architecture of the nineteenth century, we must, as a primary consideration, have a care that it is indeed our own, taking its form and characteristics, not from precedent, but from ourselves. We should get a thorough knowledge of the formation of anterior styles, but this knowledge should be accompanied by a spirit of intelligent discrimination and criticism. We should not use our knowledge like pedants, but like persons who, having ideas of their own, are choice in the language with which they would express them. We should above all endeavor to forget those conventionalities and commonplaces, which, with a persistency worthy of a more noble object, have been reiterated for the last two hundred years as if they were the only utterance of architecture.

The art we seek should be under the control of an harmonic system, a pervading spirit of unity, but sufficiently elastic to be a faithful monumental record of the modifications and results of progress as they take their places in history; it should be untrammelled by such purely conventional formulas as are applied to the orders, for example, or as are derived from what are called the laws of symmetry.

Symmetry is no more a general law of architecture than equality is a law of society. We admit the equality of all before the law, but equality is not the law, for we cannot recognize an equality of intellect, talent, physical force, or wealth among all the members of society. In fact, symmetry, accepted as a general, dominating law in art, is a sort of communism, which enervates art and debases those who practise it.

It is considered a mark of respect for art to require an architect to make a block of buildings after one pattern, and to pierce his façade with the same kind of windows, without regard to the various characters of the rooms within to which they belong; but, in so doing, instead of proving yourself a lover of art, you are really its executioner; you stifle its most noble quality, which is its perfect freedom. There can be no art without freedom; for art is the expression of ideas, and what kind of ideas do you express when you are constrained to say nothing but what your neighbor says, or to call that white which you see is black?

Municipal regulations, forbidding the erection of buildings above a certain height or fixing the amount of projection allowed beyond the street line, are reasonable and proper; but if these regulations

should require twenty different architects to adopt in twenty different buildings the same cornice-profile, the same style of window, or the same heights of string-courses, under pretence of symmetry, when the interior of each of these houses has its own individual characteristics in its arrangement of rooms, they certainly would not be justifiable. But if municipal authority should ever be stretched to such a deplorable point as this, the architects would have nobody to blame for it but themselves, in having set the example by practising under doctrines which recognize such absurdities, and by reducing architecture to the condition of a vulgar formula which any one can employ mechanically and without effort of reason.

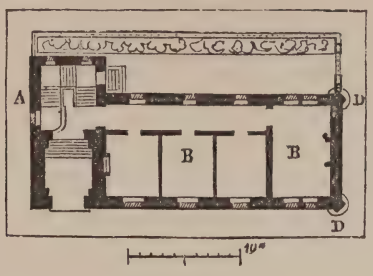
Although, however, we cannot find in symmetry the qualities which constitute a law, there are certain cases in which it is satisfactory, and this is the most that can be said about it; but, on the other hand, harmony and balance of parts or ponderation *are* laws which should be understood and applied in architecture.

Some of the harmonic laws of proportions have been already explained; and the most beautiful buildings of antiquity, or of the Middle Ages, illustrate those of balance; but balance is not symmetry, as it admits of variety. We do not put similar things in opposite sides of the scale, precisely because they are similar. A statement of requirements to be fulfilled in a building, if interpreted strictly with regard to convenience, usually results in an irregular plan, and it is the duty of the artist to see that this irregular plan presents well-balanced elevations; or, in other words, that it does not appear "one-sided," lame, or incomplete.

Let us suppose, for example, that we have to build a small town hall, including on the ground-floor a few offices, and in the principal story a great room, the whole surmounted by a belfry. It is evident that if I place the belfry-tower in the axis of the façade for the sake of symmetry, I must either cut the great room in halves or have recourse to some complicated, expensive, and dishonest construction, — for dishonesty in architecture is apt to be expensive. I propose to be more frank. I place the tower at one of the extremities of the building, using its lower story as a vestibule, as represented in the plan (Fig. 107); within, at A, I build the staircase; at B, I arrange the offices and cabinet of the mayor, etc. On the principal floor above I avail myself of the tower chamber above the porch as a waiting-room, and find the rest of the story readily adapted for a large,

well-lighted hall. In the roof I place the store-rooms and archives. Having settled thus upon the most convenient disposition for my plan, I proceed, in the elevation C, to give due value and expression to my tower, which must be a massive, solid structure, flanking one of the extremities of the building and rising above it. Then I must

Fig. 107.

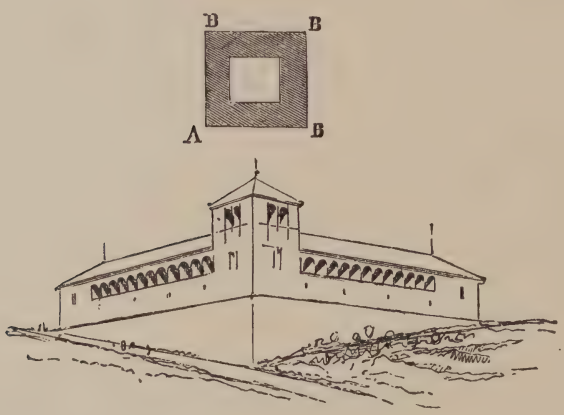


proceed to provide for the ample lighting of my hall by windows, and so to treat the angles D of the façade opposite the tower that they shall present features of weight and solidity to oppose the thrusts of the large discharging arches which I find it necessary to throw over

these principal windows; I therefore, on each angle of the gable-end, erect a corner turret, to serve as a buttress or vertical weight. In thus treating this gable-end I balance the façade, although it is by no means symmetrical. The eye instinctively perceives that the angle on the left occupied by the tower is not only higher than the rest, but especially solid and massive; that the part pierced by the large windows has no unnecessary weight to carry; and that this façade is terminated at its other extremity by a weight acting vertically. This is not symmetry, but balance, — an end the more perfectly obtained if we can manage that the length *a b* of the whole façade shall be to the height *a c* of the tower wall as the length *e b* of the façade without the tower is to the height *d b* of the masonry of the corner turrets.

Again: I have a square building to erect; it is composed of four ranges or wings around a square court in the centre; the ground to be

Fig. 108.

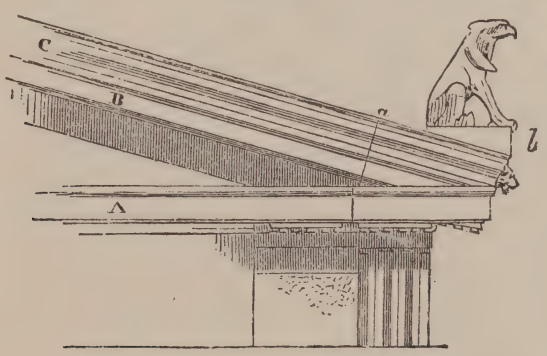


occupied by the structure is sloping, the angle A (Fig. 108) of the plan being much lower than the other three angles B, B, B. It is necessary to construct somewhere in the building an extra story, forming a sort of belvidere or tower; this must be placed, not in the middle of one of the façades, but on the angle A (see perspective elevation), where the ground falls away most, because the eye requires that the extra story shall be placed where the character of the site renders the greatest solidity and strength necessary. Thus the structure is balanced, which, under the specified conditions, would not be the case with any other disposition of the tower.

If we look at the paintings or ruins of those groups of domestic

buildings known as the *villas* of antiquity, we shall be struck by the delicacy of observation exhibited by their architects with respect to the balance of masses. And the same quality is especially remarkable in the castles, abbeys, hospitals, and even town houses of mediæval times. These buildings are attached solidly to the ground, and by the composition of their masses attract the eye and gratify the mind. The house of Jaques Cœur at Bourges, that of Cluny at Paris, and, in fact, all the old feudal castles including some much more recent, such as Blois, Chenonceaux, Ecouen, Azay-le-Rideau, are excellent examples of the application of this principle. They owe their peculiar charms, not to any symmetrical arrangements of their parts, but to the balance of these parts. To obtain this effect of balance is, I admit, much more difficult than to continue the lines and indefinitely to repeat the features of a building for the sake of obtaining an effect of uniformity; but it is art, and it can never be proved of art, that to be simple and easy is to be beautiful.

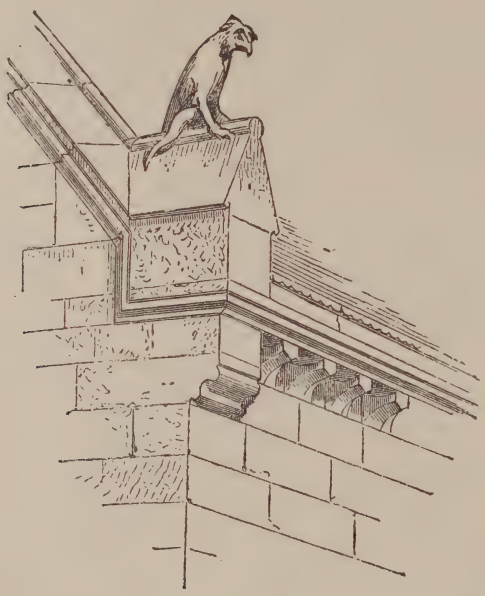
Fig. 109.



But the architects of antiquity and of the Middle Ages extended the application of the laws of balance to the composition of details. Two examples will suffice to exhibit the fine intelligence they displayed in this respect. Fig. 109 exhibits the usual arrangement of mouldings at the lower angle of a Greek pediment. The level corona or larmier A, crowned by a fillet, is repeated at B, where it slopes above the tympanum, and the whole is surmounted by a cymatium C, which returns around the lower angle to form the upper member of the level entablature along the sides of the building. Whatever respect we may profess for Greek architecture, it must be confessed that there is a grave error in the manner in which the sloping and level members meet at the lower angle of the pediment, the necessary dis-

position of masonry, suggested at the joint *a*, to stop the apparent tendency of the moulding C to slip down the slope of the pediment, being in contradiction to the arrangement of architectural lines at that point. The delicate sentiment of the Greek artists must have been offended at this meagreness and weakness of effect, for, in order to counteract it as far as possible, and to reassure the eye, they often placed upon the lower extremity of the cymatium a little acroterium *b*, crowned by an ornament or figure, in order to give an appearance of weight or resistance. But the architects of the thirteenth century remedied this difficulty more frankly and more honestly by such com-

Fig. 110.



binations as not only marked emphatically the return of the mouldings around the corner, but gave and expressed the necessary strength and weight required at this point, as may be seen on reference to Fig. 110. This is a perfectly reasonable method of giving an appearance of solidity to the foot of the gable; we can imagine that the other angle is strengthened by a tower or staircase turret, but even then the eye would not be less content with the neatness and ease with which the sloping gable is stopped by the Gothic acroterium.

In fact, balance may be defined as the art of giving an effect of

completeness without the aid of symmetry; but when the architect's resources are such as to afford him no other means of obtaining this effect but symmetry, his art becomes like one of those trades whose perfection consists in marvellous exactness of repetition. If, therefore, the laws of symmetry, being mechanical, are not, properly speaking, applicable to the art of architecture, we have seen, on the other hand, that the best architects of antiquity and of the Middle Ages respected and obeyed the laws of balance. These laws of balance, like those of proportion, are nothing more than the apparent expression of the laws of statics.

Geometry and calculation, then, are the fundamental bases of the art; by building upon such bases, we can escape the pitiable vulgarity of mere classicism, and, indeed, if our civil engineers, who are accustomed to nice calculations and who are excellent geometers, concerned themselves less with unreasonably reproducing in their works classic forms, and contented themselves with the simplest, most economical, and most unaffected manifestation of their construction, there is no doubt that they would produce some remarkable results, as seen from a purely artistic point of view; for a faithful observance of the laws of statics, developed by calculation and geometry, must lead to sincerity and truth of expression, and whenever these qualities control a work of art, it instinctively charms both the cultivated and the uncultivated mind. Although the public taste has been led astray by the universal habit of insincerity or falsehood in architectural works, it is nevertheless invariably attracted by a true work, which appears what it really is. Everything which explains itself must have such qualities of fitness as to recommend it to the approbation of the beholder. By using such forms as shall most naturally and inartificially express the qualities and capacities of the materials we employ, by using cast-iron forms for cast-iron and wrought-iron forms for wrought-iron, by having appropriate distinctions of treatment for a form of granite, of sandstone, of marble, of brick, and of wood, we shall not only open a vast and inexhaustible field for variety and novelty of design, but must at last succeed in attracting the sympathy and appreciation of the public for an art which, by its false and arbitrary standards of criticism, has so long been alienated from them. If the people have been misled in matters of taste, is it not plainly the privilege and duty of the artist to enlighten them, and is it not the extreme of stupid folly to go on multiplying known and

acknowledged errors? The first rule which men of good breeding impose upon themselves is not to lie; how then is it with artists, who every day accumulate lie upon lie in their works? The word is coarse, indeed, but the crime which it stigmatizes is deserving of it. The modern architecture, which is called classic, is a lie, while one of the most lovely qualities of that architecture, whose traditions it claims to perpetuate, is honesty, both with regard to the material and the manner in which the material was employed. It is true, if we have immense resources at our disposal, we can, by the exercise of great care, so use this pompous style as to avoid actual deceit; but, when our means are limited, to what falsehoods is the architect driven in order to obtain that pompous effect which is alone recognized as classic! What columns and cornices of plaster! What beams of wood imitating lintels of stone! What ceilings, painted and formed to appear like the work of the carpenter and the cabinet-maker! What imitations of marble in stucco, of sculpture in moulded paste, of vaults of stone in vaults of lath and plaster! In all this architecture the great and only aim is to deceive, to appear what it is not.

But, without descending so low as this, although in practice we make the descent far too often, we have only to glance at some of our most important and most costly modern structures to see that the masonry is rarely in accord with the architectural detail, and that the courses of stone do not coincide with the horizontal lines of architecture;* so that, after a few years, when each stone has become defined by some difference of tint, the disaccord between the joints of construction and the style of architecture becomes painfully apparent; we see the joints of flat arches betraying the false lintel; we see arch-stones not confined to the arch mouldings, but passing beyond them and making their way into the tympana and spandrels above; we see the sculpture of bas-reliefs cut this way and that by joints of masonry; we see copies of the great open bays and arches of the Romans entirely losing their effect by being closed in with glazed sashes; we see staircases passing across windows, and stories, which on the exterior appear single, cut in two in the interior by floors; we see roofs concealed behind acroteria; iron floors, covered on their under surfaces with plaster to give the effect of wooden ceilings;

* The modern habit in Paris is to lay up the stone "in the rough," and afterwards to cut and trim it into architectural forms, often without regard to the proper coincidence between the joints of the masonry and the finished detail. — TRANSLATOR.

enormous rooms from thirty to sixty feet high lighted by several ranges of windows so as on the exterior to have the effect of being divided into several stories; we see wood painted in imitation of stone or marble, and stone to appear like wood; in the interior we see as many false doors as true, so that the stranger is puzzled to know which to open, and enormous chimneys to accommodate the smallest fires. What other name than lies can we give to such things?

If we wish seriously to discover an architecture, the first condition to observe is to avoid deceit, not only in respect to the general design, but in the least details of the edifice we are to construct. In fact, to such a condition has the present practice of architecture reduced us, that any architect who should be enabled to design and carry out a work with absolute sincerity would produce a very novel and probably a very interesting building; more than this, he would be really classic in the sense of submitting himself to the same invariable laws of art as controlled the development of the best styles of antiquity. Having at our disposal new materials, machinery until now unknown, enlarged resources, requirements much more complicated than those with which the ancients had to deal in their architecture, having an extensive knowledge of precedent in its development under various civilizations, — if to all this we should add sincerity, in fulfilling to the letter the requirements we are to satisfy, and in using our materials honestly and wisely; if we should avail ourselves also of the discoveries of science and pay especial heed to the suggestions of common-sense, trying above all to forget false doctrines and to lay aside all prejudice and caprice, — we might then hope at least to lay the foundations of a true architecture of the nineteenth century, although perhaps we must leave to our successors the task of developing it to completion.

But in addition to the laws already indicated as applicable to architectural composition, there is yet another no less important, which in modern practice is almost entirely neglected; it touches pure art, and may be distinguished as the law of *congruity*. Thus, to give to a dwelling raised upon shop-fronts, which entirely destroy the effect of a basement, the façade of a palace; to decorate it with Corinthian pilasters which have no better resting-place than glass sashes, behind which are displayed dry-goods or hats and caps, is an evident offence against this law. To build in the same city and at the same moment

a church in the Gothic manner, a second after the Renaissance, a third in a pseudo-Byzantine style, is also, as far as art is concerned, an indication of a general disregard for congruity, or fitness; for, apart from considerations of the difference between religious sects and forms of worship, it would be difficult to explain how, in a healthy state of architectural art, the same sect can be accommodated equally well in churches entirely dissimilar in motive, style, and treatment. The question then is, which is the more Catholic or which the more Protestant, a Byzantine church, a Renaissance church, or a neo-Gothic church, and why should one be more Catholic or Protestant than the others? To make the classic façade of a municipal office *simulate* that of an ancient Gothic church built *en pendant;* to make a little theatre, next a great parish church, appear like a detached fragment of the church; to crown a court-house with a cupola like that of a mosque, — all these things, which have lately been done in the capital of France, indicate a prevailing disregard, or, at least, an ignorance of that law of congruity which must be strictly observed wherever there is true art.

The same law extends, in its application, to all the details of a building, and its observance is seen in the proper subordination of parts. Thus, if all the means necessary to indicate richness are exhausted upon an accessory of a great palace, subordination of parts is disregarded, and the principal mass of the structure must suffer in proportion; if all the resources of art and material are lavished upon the staircase, the apartments to which the staircase is an approach must appear incongruous. In like manner we offend against the laws of congruity when we establish along the fronts of our city or country houses great porticos not intended for public use, and excluding needful light from the rooms which open upon them; also, when, behind elaborate façades of stone, sculptured at great cost, we cover the interior with wall-papers representing sculpture in wood, marble, or bronze, and when the interior decoration affects a style not in accordance with that observed in the exterior.

The architect, in decorating, should never lose sight of these principles of gradation and subordination. However ample the means placed in his hands, he should never lavish all the richness of design at his command upon the vestibule or the façade; the great value of richness of design being not in itself, but in its fitness for its place, not only in contrast with other places, but in its subordination to the

main architectural lines or surfaces which it decorates. It is noticeable that, after their first astonishment at the decorations of our palatial interiors, the public soon weary and lose their interest in them, because these decorations present a mass of ornaments, gilding, and painting, concealing almost always a poor composition or a commonplace idea, carelessly studied proportions, or incongruous masses. They are a mere varnish laid upon a vulgar object, an embroidery bedizening an ungraceful shape. Clothe a deformed man as you will, you can never give him a noble bearing. It is the same in architecture. When, by means of carving and gilding, you endeavor to distract attention from a troublesome assemblage of lines, a disagreeable proportion, a vulgar form, you effect no higher object than the momentary amusement of the multitude. Such decoration leaves upon the mind but a confused impression, and often causes such a thorough dislike for splendor so ill used, that a simple square chamber with smooth whitewashed walls would be a grateful relief. In fact, nothing leads to satiety in the arts more readily than an overloaded or abused ornamentation, especially when it is not applied to a form in itself beautiful. Art cannot approach absolute sterility more nearly than by such an abuse of its instruments. It is only lines combined with skill and feeling, only forms easy to understand, only broad and massive treatment, which can produce a profound impression and elevate an idea to the dignity of a work of art. In this respect the ancients are our masters. So long as we disregard these principles, we have no right to boast of being their pupils; and so long as we continue to borrow from the age of Louis XIV. some of its tinsel, without reproducing that feeling for form of which some traces still lingered even in that era, we have no right to cover up our short-comings under the cloak of what we call respectable traditions; the public, weary of the gilded rags which cover such wretched bodies, weary of an art which has neither distinction nor choice, will soon demand a return even to those pale cold copies of antiquity so much in vogue at the beginning of the century, but which at least had the courage to expose their own nakedness and sterility, and did not conceal their emptiness of conception under a fictitious splendor stolen from a few old houses of the faubourg St. Germain.

This Discourse, then, is intended to embrace the conditions under which the true architect is developed; these conditions include, as we have seen, method in the study of architectural precedents, and the

submission of the results of this study to the chastisement of reason; they include certain laws for the government of the architect in design, — laws which are either purely mathematical or purely æsthetical. The first are the corollaries of statics, and belong exclusively to construction; the last relate to proportion, the observation of effects, decoration, and certain proprieties of expression to be observed in respect to the requirements we are called upon to satisfy and the means by which we are to satisfy them.

Archæological studies have demonstrated that every epoch of art had its peculiar style, that is to say, a harmony, a unity in the conception of the whole and in the execution of the parts. There has never been, and there can never be, an art outside of these fundamental conditions. It remains for us either to adopt one of these known styles or to form a new one. If we would form out of these various styles an amalgam, the archæologists will analyze our mixture and will demonstrate to us in the most logical way that it is composed of contradictory elements cancelling and embarrassing one another. That which we call eclecticism in art, the appropriation of various and contradictory elements to the composition of a new art, is, after all, mere barbarism. The experiment was tried in the epoch between the fall of the arts of antiquity and the advent of the lay school of architects of the twelfth century. When the Romanesque architects of the eleventh century took their plan from the Romans, their details from the East, their cupola from the Byzantines, their timber work from the races of the North, and used with all this the *débris* of the old monuments of the empire, there was no one with authority to mark and to explain on philosophical principles the conflicting character of the elements thus combined. But we are too learned now to repeat the experiment with any prospects of success; we can no longer make such mixtures of styles with that simplicity, innocence, or good faith, which at that time could apply, as it were, an harmonious varnish over the most heterogeneous combinations; indeed, ignorance alone is capable of giving body and wholeness to such a confusion of elements. But now that science is competent to classify these elements, the power of so mixing them as to obtain any concrete result is taken away from us. Inasmuch as we are aware that at the bottom of all these various styles there are two or three principles with a very limited number of ideas derived from each, to undertake to conciliate these principles in the same expression of art, or to over-

look the fact that the ideas we perceive in antique art were derived from these principles, is to go back into barbarism with our eyes wide open.

It would be folly to undertake to oppose archæological studies, for they are probably destined to serve as the solid basis of modern art; yet, inasmuch as archæology seems lately to have influenced rather the material than the intellectual side of art, we should take care that they are not so misdirected as to become dangerous. If we would obtain substantial profit from the study of the past, we should not occupy ourselves with such trivial questions as whether the metopes of a certain temple were colored blue or red, whether the grilles of bronze were engraved with silver, whether the eyes of such a statue were incrusted with enamel or with precious stones; we should rather study to comprehend the reasons why such a method of decoration was adopted, and to obtain a broad and clear idea of those civilizations which manifest themselves to us in the few expressions of art which we are seeking to decipher. The infinite and puerile details to which the study of antiquity and of the Middle Ages is now chiefly directed cause us too often to lose sight of the principal advantage to be derived from such study, namely, the inferences of humanity, its efforts and tendencies, and the means which men have employed at various eras of the world's history to express their thoughts, their taste, and their genius. It is of very little importance for us to know the precise composition of the pomades used by Greek and Roman ladies, but it is of great importance to us to understand their social and domestic condition, the employment of their leisure, the culture of their minds. I shall not find fault with historical painters for knowing how many strings of pearls the satraps carried around their necks, and whether they wore shoes, socks, or sandals, provided it has been first ascertained what a satrap really was. Archæological studies will be profitable to the arts provided they succeed in developing ruling principles, the causes and the logical order of facts; and when, in the course of these investigations, our attention is attracted by mere details and minor consequences, we certainly should not give them more importance than is justly their due in the history of mankind, neither should we neglect or lay them aside as entirely unworthy of notice; they should be classified methodically, according to their bearing upon the more vital points at issue. In a word, the true part of archæology should not be to restrict the

spirit of the artist, but, on the contrary, to enlarge it by teaching him the nature of those great invariable principles which must always control intellectual effort.

But the great question of this nineteenth century, that which daily assumes increased importance and must in the end predominate over all others, is the matter of expense, the financial question. The more prosperous society becomes and the more abundant the wealth of nations, the stronger is the tendency of mankind to employ their resources judiciously; useless expenses offend the public sentiment. As civilization advances, every individual of a community has a greater interest in the commonwealth, better appreciates the value of things, and is more sensitive to the improper employment of the public resources. In a word, the people complain not of a profuse but of a misdirected use of the public moneys. Now, in all modern civilized nations public buildings must occupy a conspicuous position in the list of appropriations; it is therefore not only necessary that these buildings should be useful, good, and beautiful, but that they should not exceed their estimates. A wise political economy requires that no public enterprise should be undertaken before the cost is counted and the details and causes of expenditure known. It is to be feared that architecture is scarcely in a condition at present to satisfy this reasonable condition. Among the curious contradictions in which our era abounds, there is one very remarkable phenomenon. Statesmen are very apt to think, if they do not say, that a passion for building is ruinous to the country, and that it would be the wisest economy to erect, for all public purposes, the plainest kind of barracks warranted to last for fifty years. They are not unnaturally frightened at the enormous sums lavished for buildings whose destination is not perfectly defined and which affect certain costly forms of architecture which cannot be explained by any considerations of propriety. In their eyes, the architect is an enemy of the public wealth, a conspirator against the treasury. On the other hand, the architects who are fostered and protected by government are so educated as fully to justify this common distrust, since they are never taught the administration of works, nor the judicious use of materials, nor the proper adjustment of architectural forms and methods of construction to the practical requirements it is their business to satisfy. Thus, in one corner of Paris the state brings up young architects who, in another corner, are entirely distrusted. The state blames its own architects

for ignorance on those points which are entirely neglected in its own schools. Now it is worthy of especial remark, that the state was never ruined by building during those epochs when architecture was in perfect harmony with the manners, needs, material resources, and necessities of the time. The monuments which the Romans built in their provinces, far from ruining them, contributed largely to spread the area of civilization and to diffuse ideas of order, wealth, and comfort. France was not ruined at the end of the thirteenth century, which had been an era especially remarkable for activity and enterprise in civil and religious building to meet requirements until then unknown. It was not embarrassed by the unusual expenditure, because the monuments erected represented, not an indefinable desire for pompous display, but a distinct and tangible idea, and were constructed to fulfil exactly certain serious and actual requirements. Their degree of richness was in proportion to their destination, and it was impossible then to mistake a palace for a hospital, or a town hall for a princely residence. The forms of architecture were the product and visible manifestation of the necessities of the time. In a word, the art was flexible to all the practical and æsthetical uses of building, was comprehended by all, and not a mere conventional formula, with which the public could have no sympathy and in which the available resources of the time found no natural expression. It accommodated itself readily to the prevailing customs, and, free in all its developments, had not yet learned to confine itself in a strait-jacket of unreasonable and inexplicable conventionalities.

THE END.

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